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DIETARY CONDITIONS IN INDUSTRY

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The proper feeding of large groups of people is a complicated task involving the consideration of many factors and the cooperation of both private and governmental agencies. There are the problems of provision of nutritious foodstuffs, of the distribution, preparation and service of foods, of food habits and of adequate housing, transportation and feeding facilities, and there is the question of cost and purchasing power.

The job we have set for ourselves, that is, improving the quality of the meals consumed by the industrial worker (and thereby improving his health and morale), not only demands the consideration of these problems but poses a few others more or less peculiar in themselves. These include:

1. The dinner pail or lunch box. The great majority of industrial workers have their lunches prepared for them at home, while others patronize local merchants who prepare lunch boxes for this purpose. This will probably continue to be so, although the time required to inspect all packages coming in and going out of industrial plants engaged in war work has, in some instances, discouraged this practice.

2. The restaurants, lunch wagons, refreshment stands and food hawkers located in the vicinity of industrial plants.

3. The rolling kitchens or food carts, refreshment stands and automatic vending machines employed within plants.

I do not mean to imply that these devices are to be condemned; quite the contrary. A problem does arise, however, in relation to the types of foods obtained from them by the workers. Too often they function largely as vendors of foods of very limited nutritional value, e. g. candy, pastry and soft drinks.

Assuredly, a situation which appears to encourage some of our industrial executives to make statements for publication and general dissemination like the quotations which follow calls for, at the very least, an active educational campaign:

"It is our firm belief that the candy bars sold throughout the plant are a definite aid to the health and efficiency of our employees, . . ."

"Candy is important in lessening fatigue and increasing morale of employees."

"Employees' nourishment afforded by candy dispensed through canteen."

4. The preparation, service and cost of midshift meals provided by restaurants and canteens located on plant premises.

5. The disruption of the eating habits of great numbers of workers which resulted from the institution of the twenty-four hour working day.

6. The optimal length of the lunch period and of the interval between feedings.

7. The decision as to what proportion of the worker's daily nutritive requirements must be provided for at the plant if he is to be kept well nourished and in good health. Many workers come to work without breakfast, particularly when distances are great and transportation facilities poor. In other instances, the community facilities are grossly inadequate to provide for the proper feeding of the new workers brought into the community by war industries. The Committee on Nutrition in Industry of the Food and Nutrition Board of the National Research Council has recommended that the midshift meal should supply at least one third of the worker's daily food requirements and has suggested that it would be desirable for at least two thirds of the daily requirements to be supplied at the plant.[1] The British government has stipulated that factory canteens in Great Britain should supply the workers with two thirds of their daily nutritional needs.

8. The particular dietary requirements of workers who must come into contact with toxic chemicals and other noxious agents, or who labor under unusual conditions of physiologic stress.

There are other questions, which I am sure have already occurred to many, that must be answered for individual plants and industries.

It is not possible for me to discuss adequately the whole problem of industrial feeding in the short time allotted to me. I shall therefore restrict myself largely to demonstrating that a problem of nutrition exists among industrial workers by citing the conditions found in a few representative industrial cafeterias by several independent investigators.

In March 1942 Miss G. Dorothy Williams of the New York State Nutrition Committee inspected the cafeteria of a large plant located near Albany, N. Y. She found that the men's trays contained mostly meat, potato, bread, pie and milk, while the girls consumed sandwiches, coffee and pie. There were few trays with a vegetable or salad. This may have been due partly to the fact that the vegetables looked rather unpalatable, because of too long periods of soaking and overcooking. The salads were also quite unattractive, because of either poor refrigeration or poor management. Practically no whole wheat breads or rolls were sold.

Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1942.

1. The Food and Nutrition of Industrial Workers in Wartime, National Research Council, Reprint and Circular Series, no. 110, April 1942.

Miss M. M. Queneau and Dr. S. A. Hyman of the New York State Health Department are at present conducting surveys of foods served and consumed in several New York State factories. They have furnished me with their observations on the three plants at which their studies have been completed. In the first plant they found that only 24 per cent of the workers ate a good lunch and 26 per cent ate a poor lunch, in spite of the fact that a liberal choice of protective foods was offered. In the second plant only 12 per cent of the workers had good lunches, and those of 41 per cent were poor. The third factory offered a very limited choice of foods, and none of the factory workers obtained a good lunch, while the lunches of 77 per cent were classified as poor.

As criteria for evaluating the lunches, Miss Queneau and Dr. Hyman used the following:

Good if lunch included all three of the following items: milk, fruit or vegetable and a main dish—meat or fish.

Fair if lacking one of these three items.

Poor if lacking two or all of the three items.

It is obvious that a lunch could meet all three of these criteria and still be grossly inadequate.

Due consideration must be given to the economic factor involved in the choice of lunches by factory and office workers. Last month I had an opportunity to inspect the cafeteria of a factory in Brooklyn. On two different occasions I selected lunches from the choice of foods offered to the employees. I found that it was possible to choose a satisfactory lunch. However, on both occasions my lunch was priced by the cafeteria manager at 57 cents. The average sum spent for lunch in that cafeteria by the employees is 37 cents. Between 200 and 250 of the 500 employees eating in the cafeteria regularly choose the day's "special," which is priced at 30 cents. Coffee is included but milk is 5 cents extra. It is not surprising, therefore, that on the two occasions that I witnessed the lunches coming off the cafeteria line not more than 100 employees chose milk with their meals. In another plant which I visited the management was keenly disappointed with the response of the employees to its innovation of providing milk and orange juice at the main refreshment stand. I dare say that a possible answer to the problem of the poor consumption of these foods existed in the fact that a pint of milk cost 10 cents (one-half pints were not available) and a container of orange juice was 8 cents. Soft drinks and coffee sold for 5 cents each and remained the most popular drinks on the menu.

The Hartford Nutrition Committee, using standards similar to those employed by Miss Queneau and Dr. Hyman, obtained like results in a survey conducted in two Connecticut plants.[1]

On my tour of industrial concerns during the summer of 1941 I found that in almost every instance at least one half of the workers selected poorly balanced lunches even when a good choice was available.

TABLE 1.—*Thirty Cent Daily Special April 29, 1942*

Food Items	Weight of Portions, Ounces	Estimated Vitamin Content Based on Literature: Vitamin A, International Units	Thiamine Hydrochloride, International Units	Ascorbic Acid, International Units	Riboflavin, Sherman-Bourquin Units	Niacin
Braised breast of lamb (edible portion)	7½	0	213	0	234	
Mashed potatoes	3¼	52	37	200	18	
String beans	2¼	703	20	278	38	No data
White bread (2 slices)	2⅝	0	21	0	18	avail-
Butter (1 pat)	¼	300	14	0	0	able
Cream (light)	1	284	6	0	37	
Coffee (1 cup)	...	...	...	...	...	
Estimated vitamin content of entire meal, based on literature		1,339	311 (0.9 mg.)	478 (24 mg.)	345 (1 mg.)	No data
Percentage of daily requirements		26.8	50.0	32.0	37.0	
Results of analyses of vitamin content of entire meal		.....	0.073 mg.	4.3 mg.	1.23 mg.	9.0 mg.
Percentage of daily requirements		No data	4.1	5.7	45.6	50.0
Percentage lost in preparation		No data	91.9	82.0	0	No data

Protein (N × 6.25) 26.9 Gm. (13 per cent of total solids of meal). Total calories 1,218.

TABLE 2.—*Fifty-Seven Cent Diet Selected with Attention Paid to Nutritive Value of Foods April 29, 1942*

Food Items	Weight of Portions	Estimated Vitamin Content Based on Literature: Vitamin A, International Units	Thiamine Hydrochloride, International Units	Ascorbic Acid, International Units	Riboflavin, Sherman-Bourquin Units	Niacin
Tomato juice	4½ oz.	1,000	32	600	20	
Roast beef (well done)	3 oz.	18	60	31	70	
French fried potatoes	3½ oz.	56	40	220	20	
Carrots	2 oz.	3,000	13	43	17	No data
Whole wheat bread (2 slices)	2¾ oz.	0	94	0	32	available
Butter (1 pat)	¼ oz.	300	14	0	0	
Milk	½ pt.	414	29	34	175	
Cocoanut custard pudding with whipped cream	5 oz.	No data	No data	No data	No data	
Estimated total vitamin content (minus pudding)		4,788	282 (0.84 mg.)	928 (46 mg.)	334 (1.0 mg.)	No data
Percentage of daily requirements		95.8	46.7	61.3	37.0	
Results of analyses of vitamin content of entire meal		.....	0.4 mg.	*25-30 mg.	2.16 mg.	8.6 mg.
Percentage of daily requirements		.....	22.2	33.3-40.0	80.0	47.9
Percentage lost in preparation		No data	52.4	34.8-45.7	0	No data

Protein (N × 6.25) 15.9 Gm. (7.4 per cent of total solids). Total calories 1,094.
* Tomato juice assayed separately 495 international units (24.75 mg.).

As it is impossible in many large plants for the employees to go to lunch rooms for their noon meals in the short time allotted to them for this purpose (twenty to thirty minutes as a rule), food carts are often sent into the factories. Some of these carts make provision for one hot dish. However, many do not, and all of them are well stocked with foods of doubtful nutritional value, e. g. sandwiches, pastry, candy, soft drinks and coffee, in addition to milk and ice cream.

During my survey of dietary conditions in industry last summer I found that from 10 to 25 per cent of the employees of thirty-three large plants visited consumed milk at the plant. My experiences since that time have not made me feel inclined to doubt the applicability of this estimate to industry as a whole. In 1936 the National Dairy Council reported [2] that "it appears that there is no uniformity in the practice (between-meal milk service), ranging from almost no such service in some localities to a 90 per cent coverage in others. In the main, our inquiries indicate that between-meal milk is now supplied in a few factories in most localities but that there is almost no such milk service in offices. Furthermore, it appears that employees do not invariably buy milk when it is made available to them. The percentage of workers taking milk varies with such factors as food habits of particular races, the season of the year and the age and sex of the workers. Sometimes as few as 2 per cent buy the milk, and rarely more than 40 per cent take it regularly."

These findings indicate a need for an active and intensive educational program. Not only is there a need for the dietary education of the worker and his family, but just as imperative is the need for the dissemination of correct information among cafeteria managers and plant executives. A great deal can be accomplished in increasing the consumption of foods and meals of high nutritional value and in decreasing the consumption of relatively poor foods by the application, by food vendors, of modern merchandising methods toward this end.

Any campaign to convince the workers of the desirability of selecting proper meals at plant food dispensaries must be predicated on an assurance that the recommended foods possess the nutritive qualities attributed to them. Unfortunately altogether too frequently it is impossible to give such assurance.

Through the cooperation of the Crotty Corporation we were able to obtain a few assays on the meals served by an industrial cafeteria to employees of a war industry in the New York area. We selected the meals for assay from the cafeteria line at the time the company employees were being fed. The various constituents of the meals were weighed in the kitchen, placed in containers with dry ice and taken to the laboratories, where assays were started immediately. The assays of the diets described in tables 1 and 2 were performed by the Fleischmann Laboratories, under the direction of Dr. C. N. Frey.

The thiamine determinations were made by the fermentation method, sulfite corrected, of Schultz, Atkins and Frey. The content of riboflavin and of niacin was determined by the collaborated methods of the Research Corporation and ascorbic acid by the indophenol method.

It is the custom in this cafeteria to serve a "daily special" for 30 cents. As a rule, more than 200 of the 500 employees patronizing the cafeteria select the "daily special." Table 1 summarizes my findings on the "special" provided on April 29, 1942. The vitamin content of the meal, as estimated from published data on the nutritive values of the raw foods,[3] is sufficient to supply considerably more than one third of the daily requirements [4] of a moderately active man of 154 pounds (69.9 Kg.) except for ascorbic acid, for which the figure represents barely one third of the requirement, and for vitamin A.

However, assay of the meal, after preparation and service, discloses a thiamine content of only 0.073 mg., representing a loss of approximately 92 per cent of the thiamine content of the fresh raw food. Only 4.3 mg. of ascorbic acid was recovered, representing a loss of 82 per cent. The meal as served therefore supplied only 4.1 per cent of the daily requirements for thiamine and only 5.7 per cent of the ascorbic acid needed by a moderately active man.

The riboflavin content of the foods proved quite stable to the method of preparation used. The niacin, protein and calory content proved to be satisfactory. The riboflavin and niacin content of the other meals tested also proved satisfactory.

TABLE 3.—*Recipe for Lamb Stew*

Boned shoulder of lamb	3 pounds 9 ounces
Potatoes	2 pounds
Onions	10 ounces
Celery	6 ounces
Carrots	27 ounces
Flour	1.5 ounces

TABLE 4.—*Recipe for Raw Vegetable Salad*

Chopped cabbage	12 ounces
Chopped green peppers	5 ounces
Chopped radishes	3 ounces
Grated carrots	6 ounces
Vinegar	½ cup
Salt	1 teaspoon
Sugar	2½ teaspoons

The estimated content of vitamin A is only 26.8 per cent of the recommended daily requirement, a definitely low figure, particularly since most of the vitamin A was present as carotene.

Table 2 represents an attempt by me to select a nutritious meal from the varieties of food offered by the cafeteria to its patrons. It would appear that I was reasonably successful, although the price of the meal proved to be 20 cents higher than the average sum spent by the plant's employees for their lunches.

Here again the preparation and service of the meal was accompanied by a loss of thiamine hydrochloride (52 per cent) and of ascorbic acid. The ascorbic acid actually found in the meal is practically all accounted for by the tomato juice present.

The relatively high "found value" of riboflavin as compared to the estimated value is explained by the fact that no estimate was made of the vitamin content of the custard pudding.

This seems an appropriate place to draw attention to the fact that 87 per cent of the thiamine content of the "daily special" described in table 1 was provided by the meat, potatoes and beans, a condition associated

2. Between Meal Milk Service in Industry, Chicago, National Dairy Council, October 1936, vol. 8, digest 2.

3. Sherman, H. C.: Chemistry of Food and Nutrition, ed. 6, New York, Macmillan Company, 1941.

4. Recommended Allowances for Various Dietary Essentials. Committee on Food and Nutrition, National Research Council, J. Am. Dietet. A. **17**: 565 (June-July) 1941.

with a 92 per cent loss of thiamine hydrochloride in the preparation of the meal. The meat, potatoes and carrots provided 40 per cent of the thiamine content of the second meal, which showed a loss of 52 per cent of the total thiamine content in preparation.

In order to check on the destruction of thiamine hydrochloride in low cost meat dishes, Miss Marie Casteen, research associate in home economics at Teachers College, Columbia University, prepared a lamb stew according to the recipe given in table 3.

This stew was eaten by a number of people and pronounced excellent as far as taste acceptability was concerned. The recipe yielded 136 ounces of stew, about seventeen 8 ounce portions. The theoretical thiamine content of each 8 ounce serving was 0.384 mg., while assay by the fermentation method, with sulfite correction, gave a value of 0.135 mg., representing a loss in preparation of approximately 65 per cent.

Miss Casteen also prepared a raw vegetable salad according to the recipe (table 4).

Three and one-half hours after preparation this salad was assayed for ascorbic acid and found to contain

The assays in this case were run by the Laboratory of Industrial Hygiene. Thiamine determinations were by the fermentation method with sulfite modifications, riboflavin determinations by the method of Snell and Strong, niacin determinations by the methods of Dann and Handler and vitamin C determinations by the Stevens method.

The results of analyses of this meal show a much better retention of vitamin content and indicate that with proper selection and proper handling good food can be delivered without excessive vitamin loss.

My associates and I realize the inadequacy of our sampling as a basis for any generalizations, and our studies are continuing. However, the cafeteria from which the diets were selected does not differ in any important respect as to management, equipment, menus and the purchase and preparation of foods from many other "better type" industrial cafeterias which we have visited. It is well known to nutritionists and research workers in the field of nutrition that, of all the vitamins, thiamine hydrochloride and ascorbic acid are the most liable to destruction in the preparation and cooking of

TABLE 5.—*Forty Cent Daily Special May 28, 1942*
(Corrected to Improve Vitamin Content)

Food Items	Weight of Portions	Estimated Vitamin Content Based on Literature: Vitamin A, International Units	Thiamine Hydrochloride, International Units	Ascorbic Acid, International Units	Riboflavin, Sherman-Bourquin Units	Niacin
Braised breast of lamb (edible portion)	5¾ oz.	0	163	0	179	..
Added brewers' yeast extract flavored for seasoning	..	..	110	..	30	1.0
Boiled potato	3½ oz.	56	40	215	19	..
String beans	2¾ oz.	703	20	278	38	..
Raw vegetable salad	5 oz.	3,000	..	749	..	..
Enriched bread (2 slices)	2 oz.	0	50	0	..	1.0
Butter (1 pat)	¼ oz.	300	14	0	0	..
Milk	½ pt.	414	29	34	175	..
Estimated vitamin content of entire meal		4,473	426 (1.27 mg.)	1,276 (63.8 mg.)	441 (1.3 mg.)	..
Percentage of daily requirements		89.5	70.6	85.0	48.1	
Results of analyses of vitamin content of entire meal		.....	0.81 mg.	45 mg.	1.43 mg.	9.4 mg.
Percentage of daily requirements		.....	45.0	60.0	52.9	52.2
Percentage lost in preparation		No data	36.3	29.5	0	No data

5.35 mg. per ounce. Although this amount represents about 40 per cent less than the theoretical content, it is still appreciable, being in the range of values found for canned tomato juice.

In view of the satisfactory content of this salad after a lapse of time sufficient to allow for normal handling in a cafeteria, the subject was discussed with the operators of the cafeteria and plans were made to serve a slightly changed "daily special." This special was based on the one described in table 1. The braised breast of lamb was seasoned by means of a commercial brewers' yeast extract. The potato item was served as a boiled whole potato rather than as mashed potatoes. The ordinary white bread was replaced by enriched bread, and the beverage was milk instead of coffee. The raw vegetable salad was added. The meal was prepared in the kitchen of the cafeteria and selected from the service counter in the same manner as the food first tested. The cost of the meal was 40 cents, an increase of 10 cents over the former "daily special."

The makeup of the meal, together with the estimated vitamin content and the results of assays, is shown in table 5. The theoretical vitamin values used in this table were computed from the same source as those in tables 1 and 2. The value for the added brewers' yeast extract was based on previous assays of the material.

foods. Riboflavin is relatively stable to heat, although it is destroyed to an appreciable extent in alkaline solutions at temperatures above 212 F.[5]

Not only do the results of these assays demonstrate the ease with which the recommended daily requirements of the Food and Nutrition Board of the National Research Council can be met by the proper selection and preparation of foods, but also they illustrate the conservatism of the recommendation by the Committee on Nutrition in Industry of the council that meals served in the plant should supply at least one third of the daily requirements.

Those who question the necessity or desirability of adhering to the recommendations of the Food and Nutrition Board are advised to read the recent article by Williams and his associates on induced thiamine deficiency in man.[6] The data of these workers indicate that, for their subjects, the optimal daily intake of thiamine hydrochloride was not less than 0.5 mg. or more than 1 mg. for each 1,000 calories of their diet.

They also found that, when subjects were maintained on daily intakes of 0.22 mg. of thiamine hydrochloride

5. Roscoe, M. H.: Heat Stability of Vitamin B_2: Rate of Destruction at Various Reactions of Vitamin B_2 Contained in Different Materials, Biochem. J. **27**: 1540, 1933.

6. Williams, R. D.; Mason, H. L.; Smith, B. F., and Wilder, R. M.: Induced Thiamine (Vitamine B_1) Deficiency and the Thiamine Requirement of Man, Arch. Int. Med. **69**: 721 (May) 1942.

per thousand calories of the diet, gross changes of behavior occurred, including a "diminished inclination to perform accustomed tasks and progressive decrease of ability to make social adjustments within the group." The more active subjects were the first affected. In the words of the authors, "They did not maintain good health. On the contrary, they all suffered impairment of physical and mental efficiency, with manifest evidence of biochemical abnormalities. They lived on a plane of vitality lowered by a deficiency of thiamine, a plane which could be raised again only by the administration of thiamine."

During the past year the Committee on Nutrition in Industry of the National Research Council has been sponsoring a study of the nutritional status of industrial workers. This study is being conducted under the direction of Dr. Henry Borsook. To date, slightly more than 1,000 men have been examined, with some extremely interesting results.

Forty-two per cent had plasma ascorbic acid levels of less than 0.5 mg. per hundred cubic centimeters (17 per cent less than 0.25 mg.). Nineteen per cent showed signs of premature degeneration of the nervous system, as evidenced by loss of vibratory sensation in the toes to a C 256 tuning fork (generally accepted as pathologic in men under 35 years of age). Forty-seven per cent presented gross vitamin A deficiency as evidenced by localized elevated conjunctival spots. Twenty-eight and six-tenths per cent had a blood hemoglobin content of less than 14 Gm. per hundred cubic centimeters.

As pointed out previously in this paper, the proper feeding of industrial workers is a complicated problem the solution of which requires the cooperation of industry, labor, the community and the government. My own observations have impressed me with the progress being made toward the integration of the efforts of these various groups so that each one's talents and opportunities for work can be most efficiently utilized. However, the evidence is so convincing that the nutritional status of large numbers of our industrial workers is below a level compatible with optimal health and physical and mental efficiency that a decided acceleration in the rate at which remedial procedures are being instituted throughout the country is indicated.

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ABSTRACT OF DISCUSSION

DR. NORMAN H. JOLLIFFE, New York: I think this paper indicates why dietary surveys, though indicating a high degree of dietary inadequacies in all population groups surveyed, are apt to underestimate the prevalence of poor diets. I wish to emphasize that the vitamin losses of cooked foods are confined almost exclusively to ascorbic acid and thiamine. I have recommended in calculation of diets that the vitamin C value content of cooked foods other than tomatoes should be estimated as zero and that the thiamine content of cooked foods be estimated as 50 per cent of the raw value. These studies by Dr. Goodhart confirm the general applicability of this rule. The only dependable dietary sources of vitamin C are citrus fruits, cooked or raw tomatoes, and fresh raw fruits and vegetables. Three other points made by Dr. Goodhart I wish to emphasize. First, the necessity for industry to employ a dietitian or nutritionist to supervise the cafeterias to insure at least a third and preferably a half of the nutritive essentials in the noon day meal. Second, that the cafeterias and the serving of food in industrial plants should be on a nonprofit basis or even subsidized by management or government. Third, that the responsibility for adequate meals be placed in the hands of the medical department.

SKI INJURIES

A STATISTICAL AND ANALYTIC STUDY

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It is my purpose in this paper to review and briefly analyze all the reported injuries sustained as a result of skiing at Sun Valley for a three year period ended in May 1942. This is now a pertinent subject in view of the increased interest and participation in skiing. Considering the fact that the United States Army is engaged in the training of ski troops, there is additional practical interest in the type of injury which may be anticipated.

Owing to the isolation of Sun Valley, almost all casualties must, from necessity, pass through one of several medical offices. All the medical facilities are under one head, and a single record system is observed.

TABLE 1.—*Summary of Ski Injuries*

	Number
Bones fractured	257
Dislocations	35
Sprains and strains	762
Contusions	147
Abrasions	57
Lacerations	114

TABLE 2.—*Fractures of Lower Extremities*

	Number
Femur	3
Tibia and fibula	28
Tibia alone	10
Trimalleolar	2
Bimalleolar	2
Posterior tibial malleolus	3
Internal malleolus	1
Fibula, proximal shaft alone	6
Fibula, distal shaft	34
Fibula, distal head	72
Fibula, distal epiphysis	6
Fibula, avulsion of distal tip	7
Astragalus, posterior process (os trigonum)	4
Astragalus, avulsion	3
Scaphoid, avulsion	1
Metatarsal, shaft	4
Metatarsal, sesamoid bone	1

This situation makes for a high degree of statistical accuracy. A full time, paid ski patrol is present at all times on the various slopes. It is the duty of the patrol to observe the factors contributing to cause accident as well as to administer first aid and transport the casualty to the medical department. The contributing factors have been previously discussed by Brothers [1] and will not be considered further in this paper.

Table 1 is a general classification of all injuries seen. It will be noted that over 20 per cent of the total is represented by either fracture or dislocation. Sprains and strains account for more than 50 per cent, but the fact that the average period of disability for this injury was about four days indicates that many of them were very minor.

Table 2 lists one hundred and eighty-seven fractures involving the bones of the lower extremities. In all but twelve of these the force applied was one of torsion. It may appear dogmatic to describe a single force responsible for fracture, but it has been observed that ski injuries occur in a rather singular manner. At the time of fall, the knees usually are slightly flexed. The ski becomes a fixed object which fixes the foot. The fall

1. Brothers, W. W.: Northwest Med. **40**: 14 (Jan.) 1941.

is to the side and forward. Thus, torsion strain is exerted through external rotation. It is my opinion that there is no weight bearing at the time of injury.

The femur was fractured three times. Twice the force was a direct impact. Only one fracture of this bone occurred as a result of torsion strain. This is rather contradictory to the general impression that the incidence of femoral fracture in torsion-strain injuries is greater. One of every five fractures was a spiral fracture of the tibia. The line of fracture in every instance involved one third or more of the entire tibial shaft and occurred in the middle and distal thirds. Usually the proximal shaft of the fibula also was fractured, and on one occasion the fibula was fractured in the proximal and distal shaft, leaving this bone in three separate segments. The spiral fractures of the tibia are usually comminuted.

TABLE 3.—*Fractures of Tibia*

	Number
Fracture of shaft of tibia alone	10
Fracture of shaft of tibia (with fibula)	28
Fracture, posterior malleolus	3
Fracture of internal malleolus	1
Bimalleolar fractures	2
Trimalleolar fractures	2

Six injuries were seen in which the only fracture was of the proximal shaft of the fibula. This fracture, first described by Maisonneuve,[2] is of some academic interest. Ashhurst [3] considered the fracture the result of external rotation of the foot so as to produce first a tibiofibular diastasis. He thought that the continued application of the torsion force finally produced fracture of the proximal shaft of the fibula. Hoenigschmied,[4] in cadaver experiments, found evidence to support this conception. An attempt was made to demonstrate tibiofibular diastasis in the present series but it was not possible to do so. The relatively rapid recovery of the ankle sprain in these cases also leads me to believe that diastasis did not exist. It is reasonable to believe that the law of inertia is a factor in the relationship between the fracture force and the fracture itself. Certainly the objective evidence of a given force varies with the time consumed by the application of the force. In this particular type of fracture the snow conditions were usually uniform, being sticky and heavy. Although there were but six fractures of this type in three years, two of them occurred within the same hour. The force of torsion was quickly applied in each instance.

TABLE 4.—*Injuries to Ankle*

	Number
Sprains of ankle	371
Bimalleolar fractures	2
Trimalleolar fractures	2
Fracture, distal head, fibula	72
Tibiofibular diastasis	8
Dislocation of astragalus	15

The trimalleolar and bimalleolar fractures reported are typical of those seen so frequently when there is a combination of forces—torsion, abduction and weight bearing. Although the posterior malleolus of the tibia was fractured as a result of direct impact three times, the os calsis was never fractured. The fracture of the posterior process of the astragalus (os trigonum) occurred once following direct impact and three times following severe torsion strain.

It will be noted that more than half of the fractures seen are those usually referred to as "ski fractures." This is a spiral fracture involving the distal shaft or the distal head of the fibula. It occurs as frequently in one leg as in the other. The mechanism is external rotation without weight bearing. The force approaches true torsion as nearly as possible. In the consideration of this particular injury there are more important factors than the fracture itself. Rupture of the tibiofibular ligament may occur with slight lateral displacements of the astragalus. In over 10 per cent of the series this could be clearly demonstrated. Failure to recognize this, with the consequent error in proper treatment, will account for considerable disability.

TABLE 5.—*Injuries to Foot*

	Number
Fracture of sesamoid bones	1
Avulsion of accessory scaphoid (later excised)	1
Avulsion fracture of scaphoid	1
Avulsion fracture of astragalus	3
Fracture, posterior process, astragalus (os trigonum)	4
Dislocation of astragalus	6
Fracture of metatarsus	4
Sprain of foot	58

TABLE 6.—*Injuries to the Knee*

	Number
Strain of internal lateral ligaments (66 occurred with sprains of ankle)	261
Contusion of cartilage	7
Dislocation of patella	2
No fractures of anterior tibial spine	
Three known cases of Pellegrini-Stiedl's disease reported following injury to the internal lateral ligament	

Table 4 is of interest in revealing the relative frequency of the various types of injury to the ankle. Considering the fact that the sprain group represents many very minor injuries, the incidence of fracture is high. All severe sprains are submitted to x-ray examination, and we have been acutely critical in each instance of the presence of injury to the tibiofibular ligaments. Laceration of this important structure was clearly demonstrable in 8 instances associated with sprain.

Carothers [5] observed in a limited number of experiments on fresh cadavers that it was necessary to divide the anterior, middle and inferior bands of the external lateral ligaments in order to produce astragalar displacement. Although there was displacement in 15 cases, the injury allowing the displacement was thought to be due to tibiofibular ligament laceration, with or without fracture of the fibula, rather than to injury to the external lateral ligaments. This is logical in view of the fact that the injuring force is one of torsion primarily.

2. Maisonneuve: Arch. gén. de méd. **1**: 165, 433, 1840.
3. Ashhurst, A. P. C., and Bromer, R. S.: Classification and Mechanism of Fractures of the Leg Bones Involving the Ankle, Arch. Surg. **4**: 51 (Jan.) 1922.
4. Hoenigschmied: Deutsche Ztschr. f. Chir. **8**: 239, 1877.
5. Carothers, R. G.: Ann. Surg. **115**: 654 (April) 1942.

Two methods of determining diastasis have been employed. One, suggested by Bromer,[3] is predicated on a true anteroposterior roentgenogram in which the shadow of the anterior lateral tubercle of the tibia must normally overlie at least one half of the fibular shadow. The second, suggested by Murray,[6] requires light anesthesia so that the injured ankle may be manipulated under fluoroscopic vision. External rotation of the foot, when there is tibiofibular ligament laceration, will allow the fibula to wing out away from the tibia.

It will be noted from table 5 that injuries to the foot were relatively infrequent. The sprains resulted in very short periods of disability. Periosteal tears were demonstrated four times, once from the anterior surface of the scaphoid and three times from the anterior surface of the astragalus. Fractures of all but the first of the metatarsal bones ocurred.

Second only to the ankle, the knee was most frequently injured. Table 6 shows that the internal lateral ligaments were sprained 261 times. One fourth of these occurred in conjunction with ankle sprain. In this group the major injury, subjectively, is usually the knee.

TABLE 7.—*Injuries to Upper Extremities*

	Number
Fracture of wrist, Colles	8
Metacarpal fractures	14
Strain of wrist	13
Contusion of hand or fingers	36
Dislocation of fingers	3
Dislocation of shoulder	15
Fracture of humerus (greater tuberosity)	11

TABLE 8.—*Dislocations*

	Number
Lateral dislocation of astragalus	15
Dislocation of patella	2
Dislocation of shoulder	15
Dislocation of fingers	3
Dislocation of nose	1

It has been pointed out that an ankle sprain may be so severe as to distract the examiner from a fracture of the proximal shaft of the fibula. It is also possible for the pain experienced from sprain of the internal ligaments of the knee to make the patient minimize a fracture of the distal head of the fibula.

Localization of pain in the tibial insertion of these ligaments may be demonstrated always. That avulsion of the femoral attachment occurs occasionally is certain. In 3 instances calcification could subsequently be demonstrated by x-ray examination. Appreciation of the pain and disability associated with this unpleasant complication makes the need for careful x-ray examination of the knee following injury obvious.

It is of considerable interest that contusion of the cartilage was diagnosed in only 7 instances. External rotation of the lower leg is associated with movement of the internal semilunar cartilage laterally, so as to approach more intimately the weight bearing surfaces. However, rotation or torsion strain alone is rarely sufficient to produce serious injury to the cartilage. It must be accompanied by weight bearing. In ski injuries these two forces are infrequently applied at one time.

Table 7 lists the injuries seen to the upper extremities. These are of little specific interest in reference to skiing, since they are the result of impact. Fracture of the greater tuberosity of the humerus occurred eleven times. There was no displacement of the fragment. In 2 instances this fracture was associated with dislocation.

Tables 8, 9 and 10 are included to make the report complete. In these groups there is nothing distinctive from the injuries associated with other contact sports. The incidence of these injuries will vary greatly with terrain and the type of skiing done.

TABLE 9.—*Miscellaneous Fractures*

	Number
Fracture of wrist	8
Fracture of coccyx	1
Fracture of mandible	1
Fracture of ribs	3
Fracture of greater tuberosity	11
Fracture of scapula	1
Compression vertebral body	1
Transverse process of vertebra	2
Fracture of femur	3

In returning to table 1, it is noted that approximately 75 per cent of the ski injuries reported are the result of torsion strain. Translated into terms of disability, this represents over 90 per cent. Consequently, any modification of skiing which will tend to decrease the application of torsion strain to the leg will reduce the number of injuries which are now being sustained. A review of the evolution of ski equipment shows that there has been a progressive tendency to approach a state in which the foot and ski act as a unit. The only noteworthy motion of the foot on the ski is a hingelike action of a few degrees. When the ski point becomes fixed in heavy snow, the foot also becomes fixed. Consequently the weight of the body going forward makes it necessary for something to give, and it is usually the lower extremity. This development in the type of ski binding now used has made for greater skill in racing and greater control in making turns and has permitted the perfection of a new style of skiing. However, there can be no question that it has been responsible for an increase in the number of torsion-strain injuries. To return to a "safe" binding which would allow the foot to become disengaged from the ski when severe torsion strain is applied would reduce this group of injuries to a minimum. Such a suggestion will never be accepted by those who ski for the thrill of accomplishing the most that can be obtained from the sport and who are willing to pay the price of injury and disability when it comes.

TABLE 10.—*Miscellaneous Injuries*

	Number
Strain of cervical muscles	7
Strain of lumbar muscles	14
Muscular contusions with severe hematoma	15
Minor contusions	116
Abrasions	57
Lacerations	114
Concussion of the brain	11

However, when skiing is studied as a means of transportation, as is the case when the mountain troops are concerned in the United States Army, a severely sprained ankle or a fractured leg is of considerable practical importance.

6. Murray, C. R.: Personal communication to the author.

THE PHYSICALLY HANDICAPPED IN INDUSTRIAL ESTABLISHMENTS OF THE GOVERNMENT

POSSIBILITIES FOR THEIR INCREASED PLACEMENT

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Under the necessity of compensating for wartime manpower shortages, the U. S. Civil Service Commission, central recruiting agency of the federal government, has conducted studies which show that thousands of jobs in industrial establishments of the government, such as arsenals and navy yards, can be filled by judicious placement of physically handicapped persons.

A valuable source of manpower is thus opened up, because many of the jobs considered in the studies have thus far been open only to persons with all their faculties.

Out of the effort to determine what positions in the federal service may be filled by physically handicapped persons and to encourage federal appointing officers to appoint these persons, when practicable, in their respective agencies a medical function of major proportions has developed. It is being performed by the commission's medical division as a special aspect of the regular function of devising minimum physical requirements for positions in the federal service.

The major outcome of the medical division's effort to promote the utilization of the services of the physically handicapped whenever possible will be the issuance of a manual, which will make available to all persons engaged in placement, training and recruitment activity for the federal civil service information with respect to positions which are suitable for the various types of physical handicaps and where these positions are located. It is expected that the first edition of the operating manual will include more than fifteen hundred positions, representing many thousands of individual jobs; additional positions which, in the opinion of the regional medical officers or Vocational Rehabilitation Services, offer placement potentialities for the physically handicapped will be investigated and, if appropriate from the standpoint of placement, will be added to those already included in the manual.

Placement of the physically handicapped can be effected with a minimum loss of efficiency and a minimum industrial risk provided there is—

1. Proper evaluation of physical requirements of the positions as determined by job analysis of physical fitness factors.
2. Proper coordination of training, recruitment and placement programs.
3. A genuine interest in "selling" the applicant's qualifications to the employer.
4. Proper coordination between the medical service of the commission, which is the recruiting agency for the federal government, and the appointing officials of the operating agencies or their medical and safety advisers.

Since there are wide variations in environmental working conditions and in functional factors of the same job in different localities, the commission does not attempt to lay down definite overall rules establishing standards for placement. Instead it recommends individual consideration of each case.

The term "physically handicapped" is interpreted as meaning "any physical deficiency, peculiarity or impairment which presents a problem in placement."[1] This interpretation by implication projects environmental and functional factors of the position in question into the meaning of the term. For example, a one armed person with a history of tuberculosis is physically handicapped only as far as he is unable to operate certain types of machinery or to work under certain environmental conditions. The elements of function and environment (industrial physiology) become of prime importance in considering the physical defects of handicapped persons in connection with placement.

Restrictions placed on employment of the handicapped which are not justifiable on a functional, environmental or industrial risk basis are artificial in the view of the commission. Such restrictions, in view of the large number of qualified handicapped persons the majority of whom could be placed in some type of employment, are not reasonable—especially in wartime when there is a dearth of the supply of physically fit manpower in the civilian labor market. It has been conservatively estimated that there are between 2,500,000 and 3,000,000 persons in the United States with physical limitations of sufficient severity to become a factor in occupational adjustment.

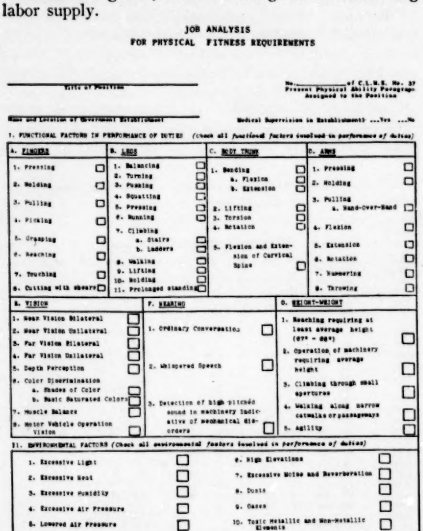
Realizing that the success of its endeavor to utilize the services of the physically handicapped in the federal civil service depends on close cooperation between the recruitment, training and placement agencies, the commission has approved the establishment of a joint committee representing the commission, the Vocational Rehabilitation Division, Office of Education, and the Council of Personnel Administration, which formulates to a considerable degree personnel policies for the federal civil service. This permanent central committee acts as a clearing and advisory group to organize more direct relationships in recruiting, training and placement activities.

In order that a proper evaluation of physical requirements of positions might be arrived at, extensive surveys pertaining to more than two thousand positions are being conducted in sixty industrial establishments of the federal government, including navy yards, naval establishments, arsenals and several plants in private industry holding government contracts. The surveys were conducted by medical officers stationed in the thirteen civil service regions. In addition to direct observation of employees performing their duties, the surveys included consultation with foremen and supervisors who were familiar with all phases of the duties performed. The resulting information is now in the process of being coded according to the system of job classification established by the U. S. Employment Service Job Classification Code[2] and according to the disability placement classification devised by the commission. The information will be incorporated into a manual to be used by the commission's representatives in recruitment, by the training agencies and by the employing officers.

The manual will be in loose-leaf form and subject to modifications from time to time. Through it information which will be valuable in training programs can be made available to training agencies. It will keep

1. Placement of Physically Handicapped Applicants Through Public Employment Offices, State Operations Bulletin 10, pt. VII, Washington, D. C., Bureau of Employment Security, Federal Security Agency.
2. An occupational dictionary, used wherever the description of a job showed it to be identical with, or closely akin to, the job surveyed.

the training agencies currently informed on placement potentialities in federal governmental industry. The information, correlated with information on current employment needs, especially with respect to positions in critical categories, will no doubt go far in conserving labor supply.



JOB ANALYSIS
FOR PHYSICAL FITNESS REQUIREMENTS

Title of Position

No. _____ of C.I.M.S. No. 57
Present Physical Ability Paragraph Assigned to the Position

Name and Location of Government Establishment

Medical Supervision in Establishment) ...Yes ...No

I. FUNCTIONAL FACTORS IN PERFORMANCE OF DUTIES (Check all functional factors involved in performance of duties)

A. FINGERS
1. Pressing
2. Holding
3. Pulling
4. Picking
5. Grasping
6. Reaching
7. Touching
8. Cutting with shears

B. ARMS
1. Balancing
2. Turning
3. Pushing
4. Squatting
5. Pressing
6. Running
7. Climbing
a. Stairs
b. Ladders
8. Walking
9. Lifting
10. Holding
11. Prolonged standing

C. BODY TRUNK
1. Bending
a. Flexion
b. Extension
2. Lifting
3. Torsion
4. Rotation
5. Flexion and Extension of Cervical Spine

D. ARMS
1. Pressing
2. Holding
3. Pulling
a. Hand-over-Hand
4. Flexion
5. Extension
6. Rotation
7. Hammering
8. Throwing

E. VISION
1. Near Vision Bilateral
2. Near Vision Unilateral
3. Far Vision Bilateral
4. Far Vision Unilateral
5. Depth Perception
6. Color Discrimination
a. Shades of Color
b. Basic Saturated Colors
7. Muscle Balance
8. Motor Vehicle Operation Vision

F. HEARING
1. Ordinary Conversation
2. Whispered Speech
3. Detection of high pitched sound in machinery indicative of mechanical disorders

G. WEIGHT-WEIGHT
1. Reaching requiring at least average height (5'7" - 5'9")
2. Operation of machinery requiring average height
3. Climbing through small apertures
4. Walking along narrow catwalks or passageways
5. Agility

II. ENVIRONMENTAL FACTORS (Check all environmental factors involved in performance of duties)

1. Excessive Light
2. Excessive Heat
3. Excessive Humidity
4. Excessive Air Pressure
5. Lowered Air Pressure
6. High Elevations
7. Excessive Noise and Reverberation
8. Dusts
9. Gases
10. Toxic Metallic and Non-Metallic Elements
11. Radioactive Elements

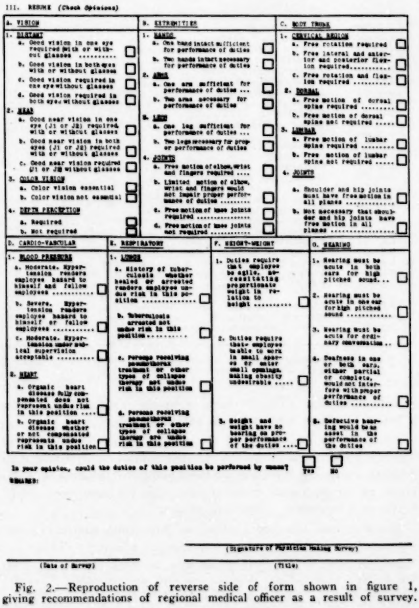
Fig. 1.—Reproduction of form used in job analysis for physical fitness requirements.

A preliminary review of reports received from regional medical officers has revealed a wide variation in functional and environmental factors appertaining to positions of the same title in different localities and often in the same establishment. With the need for speeding up production, there has been a shift to the assembly line technic. This inevitably has brought a tendency toward specialization; this tendency is increased by the shortage of skilled labor and the lack of time for training inexperienced labor to handle more than one job. Whereas in the past a person with a rating in a particular trade was expected to do, and was capable of doing, all the duties of that trade, now the rating is given frequently to a man whose capabililties are limited to only a few of those duties. For example, a shipfitter's rating is given to a man who works aboard ship doing very arduous work requiring considerable agility and also to the man who works in the structural shop running a drill press or some similar machine. Volume of work may necessitate shifting these men to other shops. Obviously the minimum physical requirements of a man in the structural shop are considerably less than for the ship worker. Agility, acute hearing and vision in two eyes are essential for the latter; they are not essential for the former.

Many positions are not static—that is, a job may require light duties during one period of its operation and extremely heavy duties at another time. This was characteristic of the majority of the positions observed in a large arsenal. At the Rock Island Arsenal the position title "classified laborer" is used in referring to an employee performing almost any type of work to which a definite classification has not been given. These employees are used as apprentices, helpers and the like and are elevated by successive grades to practically any classification. Therefore it is not possible to set down dogmatically the physical requirements for the position of classified laborer.

The survey of the position of blacksmith at the Washington Navy Yard reveals placement potentialities for persons who have lost one leg and who use a good artificial appliance. The survey of the same position at the New York Navy Yard shows that there are unavoidable hazards peculiar to that establishment which make placement of a person with such a defect inadvisable.

It is apparent, therefore, that general principles of placement relating to job families or constellations cannot be followed too closely in devising the manual; instead, it is being constructed so that a particular position in a particular establishment may be considered on an individual basis. It is expected that all considerations relating to placement will be tempered by the functional and environmental factors peculiar to each governmental establishment and also by results of consultation between the commission's medical officers and



III. REMARKS (Check Opinions)

A. VISION
1. DISTANT
a. Good vision in one eye required with or without glasses
b. Good vision in both eyes with or without glasses
c. Good vision required in one eye without glasses
d. Good vision required in both eyes without glasses
2. NEAR
a. Good near vision in one eye (J1 or J2) required with or without glasses
b. Good near vision in both eyes (J1 or J2) required with or without glasses
c. Good near vision required (J1 or J2) without glasses
3. COLOR VISION
a. Color vision essential
b. Color vision not essential
4. DEPTH PERCEPTION
a. Required
b. Not required

B. EXTREMITIES
1. HANDS
a. One hand intact sufficient for performance of duties
b. Two hands intact necessary for performance of duties
2. ARMS
a. One arm sufficient for performance of duties
b. Two arms necessary for performance of duties
3. LEGS
a. One leg sufficient for performance of duties
b. Two legs necessary for proper performance of duties
4. JOINTS
a. Free motion of elbow, wrist and fingers required
b. Limited motion of elbow, wrist and fingers would not impair proper performance of duties
c. Free motion of knee joints required
d. Free motion of knee joints not required

C. BODY TRUNK
1. CERVICAL REGION
a. Free rotation required
b. Free lateral and anterior and posterior flexion required
c. Free rotation and flexion required
2. DORSAL
a. Free motion of dorsal spine required
b. Free motion of dorsal spine not required
3. LUMBAR
a. Free motion of lumbar spine required
b. Free motion of lumbar spine not required
4. JOINTS
a. Shoulder and hip joints must have free motion in all planes
b. Not necessary that shoulder and hip joints have free motion in all planes

D. CARDIO-VASCULAR
1. BLOOD PRESSURE
a. Moderate. Hypertension classed as employable; hazard to himself and fellow employees
b. Severe. Hypertension classed employee hazard to himself, fellow employees
c. Moderate. Hypertension under medical supervision acceptable
2. HEART
a. Organic heart disease fully compensated does not constitute risk in this position
b. Organic heart disease either of valvular or compensatory type considered risk in this position

E. RESPIRATORY
1. LUNGS
a. History of tuberculosis whether healed or arrested renders employee unacceptable risk in this position
b. Tuberculosis arrested but under risk in this position
c. Persons receiving pneumothorax treatment or other types of collapse therapy not under risk in this position
d. Persons receiving pneumothorax treatment or other types of collapse therapy are under risk in this position

F. WEIGHT-WEIGHT
1. Duties require the use of weight in lifting, carrying, positioning or assisting others in handling weight in relation to height
2. Duties require that employee be able to work in small spaces, as in small openings, making obesity undesirable
3. Weight and weight have no bearing on proper performance of the duties

G. HEARING
1. Hearing must be acute in both ears for high pitched sounds
2. Hearing must be acute in one ear for high pitched sounds
3. Hearing must be acute for ordinary conversation
4. Deafness in one ear of such material or degree that would not interfere with proper performance of duties
5. Defective hearing unlikely to be a source of interference with the performance of the duties

In your opinion, could the duties of this position be performed by women? Yes No

REMARKS:

(Date of Survey)

(Signature of Physician Making Survey)

(Title)

Fig. 2.—Reproduction of reverse side of form shown in figure 1, giving recommendations of regional medical officer as a result of survey.

the medical adviser, safety engineer or other official responsible for the placement policy of the establishment.

Certain basic considerations are evident in devising the placement manual. One of them has to do with the prevalence of certain types of physical defects which present problems in placement. All available statistics

on the frequency of physical disability must be treated as estimates. According to the National Health Survey [3] made by the United States Public Health Service, prevalence rates are as follows:

Orthopedic Impairments.—It is estimated that 2 out of every one hundred persons in the United States have a permanent orthopedic impairment of such serious nature that they are considered to be partly, or completely, crippled, deformed or paralyzed. On this basis there would be a total of approximately 2,500,000 persons in the United States with orthopedic handicaps, and 500,000 of them would have handicaps of such serious nature that they are incapacitated.

Chronic Disease.—Estimates dealing with chronic disease other than tuberculosis and heart disease are not useful. It is estimated that 3,700,000 persons in the United States have a heart condition and that 680,000 have tuberculosis.

Blindness in One or Both Eyes.—There are approximately 133,000 blind persons in the United States. Approximately 425,000 persons in the United States are blind in one eye. The latter group represents the important clue for placement potentiality in government industry at present.

Deafness and Hard of Hearing.—This group has the largest potentialities in placement in government industry. There are approximately 65,000 persons in the general population who are totally deaf, 60,000 deaf mutes and an estimated 1,547,000 persons who are classed as being hard of hearing.

In dealing with these defects the commission is taking into consideration some fundamental principles in evaluating the results of the surveys made of positions.

In its placement activity the commission considers only orthopedic crippling conditions which are permanent or static. Acute, subacute or chronic disease processes of the bone, peripheral vessels and muscles causing orthopedic deformities are not considered in judicious initial placement, in view of the possibility of exacerbation involving one or more additional organs or members of the body. Such complications add to the physical limitations of the employee—limitations which cannot be anticipated in his vocational training. It is recognized also that the disease itself, apart from the resulting deformity, may add to the limitations on the employee's activity.

Of the orthopedic deformities met in civil service placement activity, experience has shown that atrophies and deformities due to poliomyelitis and amputations (due to accidents) are the most common. These defects are considered as being static, and persons with such defects are the most suitable in the orthopedic defects class for judicious placement in government industry. In the placement of the physically handicapped in the orthopedic group, the commission depends on complete preplacement medical reports of all persons being considered. When necessary, depending on the nature of the handicap, the commission's medical officers will request special reports from orthopedic specialists. The surveys indicate definitely that in no other type of defects is it more important to evaluate accurately the functional factors of the position than it is in determining individual limitations due to orthopedic defects. Although the surveys indicate that a large number of positions in governmental establishments have walking, standing or climbing as part of the duties, it is felt, on evaluating the survey reports, that placement oppor-

TABLE 1.—*Partial List of Positions in Government Aircraft Industry Offering Placement Potentialities for Physically Handicapped*

Occupational Code	Title of Position: Aircraft Industry	Region and Establishment	Disability Placement Code *											
5-83.972	Aircraft instrument mechanic	† R02	03	05	06	08	12	15	17	18	20	24	37	44
5-80.100	Aircraft mechanic, general	R02	06	08	12	18	20	30	31	33	44			
5-80.100	Aircraft mechanic, motor	R02	06	08	12	18	20	37	44					
1-38.01	Assistant storekeeper	R02	05	15	17	30	31	33						
4-86.010	Blacksmith	R02	06	08	18	20	31	33						
6-77.020	Buffer and polisher	R02	06	08	12	18	20	30	31	33	37			
4-78.061	Die machine operator	R02	05	06	08	12	15	17	18	20	24	31	33	37	44
4-76.010	Die sinker	R02	06	08	18	20	31	33						
6-37.000	Double needle operator	R02	05	06	08	12	15	17	18	20	24	31	33	37	44
4-74.010	Electroplater	R02	06	08	12	18	20	31	33						
6-77.040	Grinder operator	R02	05	06	08	12	15	17	18	20	24				
4-87.010	Heat treater	R02	06	08	12	13	15	17	18	20	30	31	33	44	
6-82.720	Helper, sandblast machine operator	R02	05	12	15	17	33								
5-03.810	Inspector, material supervisor	R02	06	08	12	18	20	44							
1-38.01	Junior storekeeper	R02	05	15	17	30	31	33							
4-75.130	Mechanic, bombsight	R02	06	08	12	18	20	33	37	44					
7-16.210	Metal sprayer	R02	05	06	08	12	15	17	18	20	24	30	31	33	
4-80.060	Metalsmith, aviation	R02	05	06	08	12	15	17	18	20	30	31	33	37	44
7-16.210	Painter, aircraft finish and insignia	R02	05	12	15	17	18	20	30	31	33				
7-49.023	Parachute repairman	R02	05	06	08	12	15	17	18	20	30	31	33		
5-17.250	Patternmaker, plaster	R02	05	06	08	12	15	17	18	20	30	31	33		
1-38.01	Principal storekeeper	R02	05	15	17	18	20	30	44						
5-83.411	Radio repairman	R02	05	06	08	12	15	17	18	20	30	44			
5-03.120	Ribstitcher	R02	06	08	18	20	37	44							
6-82.720	Sandblaster	R02	05	12	15	17	31	33							
0-95.93	Senior safety inspector	R02	05	15	17										
6-27.504	Sewer	R02	05	06	08	12	15	17	18	20	30	31	33	37	44
4-87.310	Temperer	R02	05	06	08	12	13	15	17	18	20	30	31	33	
4-76.210	Toolmaker	R02	05	06	08	15	17	18	20	30	33	37	44		
4-35.720	Upholsterer	R02	05	06	08	12	15	17	18	20	30	31	33	37	44
5-03.210	Wireworker, aviation	R02	05	06	08	12	15	17	18	20	24	30	31	33	37	44
5-03.000	Aircraft fabric worker	302	30												
5-83.972	Aircraft instrument mechanic	‡ 302	06	08	12	18	20	30	31	33	37				
7-80.120	Aircraft instrument mechanic helper	302	06	08	12	18	20	30							
5-80.100	Aircraft mechanic, motor	302	33												
5-83.411	Electrician, aircraft radio	302	05	06	08	12	17	18	20	30	33	37	44		
9-65.43	Electrician, aircraft radio helper	302	05	06	08	12	17	18	20	30	37	44			
5-80.910	Junior inspector, engineering mat. aero	302	06	08	18	20	37								
5-27.910	Painter, finish and insignia, aircraft	302	33												
7-49.023	Parachute repairman	302	31	33	37	44									
5-83.545	Aircraft armament mechanic	601	30	33	44										
4-97.910	Aircraft electrician	601	30	33	44										
9-65.43	Aircraft electrician helper	§ 601	30	33	44										

* Disability placement code is interpreted in table 4.
‡ Naval Aircraft Factory, Philadelphia, third region.
† Alameda Naval Air Base, Alameda, Calif., twelfth region.
§ Wright Field, Dayton, Ohio, sixth region.

3. The Prevalence and Causes of Orthopedic Impairments, National Health Survey, Sickness and Medical Care Series, Bull. 4, 1935-1936.

tunities are afforded in a large number of these positions to persons with amputations of one lower extremity with a good orthopedic appliance.

It is expected that in consultations between the regional medical officers and the medical and safety advisers, representing appointing officials, the question of floor hazards and dangerous machinery will be discussed. When these hazards exist, placement of a person with an amputated leg or foot is not advisable. Also certain establishments have an environment of intense heat and humidity which would not be suitable for persons with amputations of lower extremities who

ment picture for persons with arm and hand disabilities more favorable. It has been found that the range of suitability for such persons in governmental industrial employment can be determined only by a strict correlation of the extent of the impairment with a careful analysis of all functional factors of the arms or hands involved in the performance of duties of the position in question. If the functional factors indicate that only one good arm or one good hand is necessary, no particular attention is given to the efficiency of the orthopedic appliance of the defective member. The functional processes of numerous occupations in government

TABLE 2.—*Partial List of Positions in Government Ship Building and Ship Repair Offering Placement Potentialities for Physically Handicapped*

Occupational Code	Title of Position Ship Building and Ship Repair	Region and Establishment	Disability Placement Code *												
7-89.051	Cable splicer, rigging loft	† R01	06	08	12	18	20	30	31	33	37	44			
5-25.650	Carpenter, ship joiner	R01	05	15	17	30	31	33							
9-47.20	Classified laborer, dock seaman	R01	05	15	17	18	20	30							
7-73.010	Crane and lift truck operator	R01	05	17											
9-48.10	Deckhand	R01	05	15	17										
4-97.420	Foreman, electrical installation	R01	05	13	15	17	44								
6-85.210	Gas cutter or burner	R01	05	15	17	30	31	33							
5-25.650	Joiner, ship	R01	31	33	44										
4-75.010	Machinist, production	R01	05	06	08	12	15	17	18	20	30	31	33	37	44
0-88.24	Marine engineman	R01	05	15	17										
7-70.210	Marine fireman	R01	05	15	17	30									
7-71.110	Oiler, marine	R01	05	17											
9-64.38	Packer	R01	05	17	30	31	33								
7-37.110	Painter	R01	05	17	33										
5-30.010	Pipe fitter	R01	05	17											
7-73.010	Senior crane and lift truck operator	R01	05	17											
4-80.010	Sheet metal worker	R01	05	17											
9-05.51	Shipfitter helper	R01	05	17											
4-86.010	Anglesmith	‡ 101	30	33											
9-54.10	Ashman, power house	101	12	13	15	17	30								
4-86.010	Blacksmith	101	31	33											
4-80.070	Boat builder	101	30	31	33										
4-83.100	Boilermaker, shop	101	30	31	33										
6-84.910	Calker and chipper	101	37	44											
5-25.110	Carpenter, building trades	101	05	15	17	44									
5-26.200	Cement finisher, building trades	101	05	13	15	17	30								
4-86.010	Chainmaker	101	31	33											
4-80.010	Coppersmith, ship	101	30												
4-80.010	Coppersmith, shop	101	30	31	33	37									
5-73.040	Craneman	101	13	15	17	44									
5-73.040	Craneman, shop	101	05	06	08	12	13	15	17	18	20	44			
4-76.010	Die sinker	101	12	33	37										
6-78.083	Driller	101	37	44											
4-97.220	Electrician, shop	101	12	13	15	17	18	20	30	31	33	37	44		
5-51.010	Engineman, power house	101	12	13	15	17	24	30	33						
7-70.040	Fireman, power house	101	12	13	15	17	30								
6-88.742	Flange turner	101	30	33											
6-86.120	Bending machine operator	§ 202	05	06	08	18	20	31	33						
4-80.070	Boatbuilder	202	05	15	30										
4-86.150	Bumping machine operator	202	05	06	08	18	20	31	33						
6-84.910	Calker	202	31	33											
6-84.920	Chipper	202	31	33											
4-80.010	Coppersmith	202	30	31	33										
4-82.010	Coremaker	202	05	06	08	13	15	17	18	20					
5-73.040	Craneman	202	05												
6-85.210	Cutter or burner, gas	202	06	08	18	20	30	31	33						

* Disability placement code is interpreted in table 4.
‡ Boston Navy Yard, Boston, first region.
† Fort Mason, San Francisco, twelfth region.
§ Brooklyn Navy Yard, Brooklyn, second region.

wear orthopedic appliances. One large establishment has a network of railroad tracks, and it is felt that in this establishment and in any other establishment in which there are extra occupational hazards due to locomotives, moving trucks and the like, persons with amputations who are wearing artificial parts should not be placed unless the management arranges for safe exits to city thoroughfares.

The survey reports are in unanimous agreement that machine-shop work is suitable for persons with one good leg and one artificial leg. Arm and hand disabilities have been found to offer more serious placement problems than defects of the lower extremities, except when the functional factors of the job are changed to meet the impairment. It is expected, however, that improvement in orthopedic appliances devised for arm and hand disabilities will go far in making the placeindustry can be broken up to allow for the loss of an arm or a hand. In other occupations, an artificial appliance and one good arm or hand would enable the handicapped person to perform the duties satisfactorily. In the majority of governmental industrial positions the loss of the ring or little finger on one hand has not been found to hamper the efficient performance of a job. Of course, loss of a thumb on either hand necessitates a careful review of the functional factors of the position, since this defect usually renders the employee incapable of picking up, holding and manipulating small articles—very common functional processes in a large number of skilled trade positions.

In assigning disability codes to positions involving heavy lifting, bending, long standing and other functions which place a strain on the body trunk, or to positions involving a humid and damp environment,

the commission has ruled out defects such as ankylosis of the spine due to arthritis, for placement consideration.

The influence of occupation on the incidence and mortality of tuberculosis among wage earners has been the concern of industrial insurance companies and public health agencies for more than a generation. The commission is cognizant of the fact that in no other kind of physical defect does the environment assume such an important role in placement considerations. Factors such as extreme changes in temperature and humidity are considered unsuitable in the placement of persons with a history of tuberculosis. Since dusts containing a high percentage of silica have an adverse effect on sive walking or standing, were not coded to indicate that placement potentialities for ex-tuberculous persons existed. Other factors that were considered in reviewing positions for placement potentialities were (1) the speed at which the employee must work, (2) the monotony of the work, (3) the vibration of the process involved, (4) the intensity, difficulty and strain involved and (5) the posture of the employee while performing the duties of the position. Factors 1, 2, 3, 4 and 5 may be considered the extrinsic or mechanical characteristics of the job. The commission was unable to consider, on the basis of information at hand, the intrinsic or psychologic factors which have a bearing on

TABLE 3.—*Partial List of Positions in Government Ammunition, Explosives and Firearms Offering Placement Potentialities for Physically Handicapped*

Occupational Code	Title of Position: Ammunition, Explosives and Firearms	Region and Establishment	Disability Placement Code *											
4-75.130	Mechanic, instrument maker	† R09	06	08	12	18	20	24	31	33	37	44		
5-08.066	Optical instrument finisher	R09	06	08	12	18	20	31	33	37	44			
4-75.130	Optical instrument maker	R09	06	08	12	18	20	31	33	37	44			
7-08.032	Optical parts inspector	R09	06	08	12	18	20	24	31	33	37	44		
7-80.611	Adjuster, belt	‡ 701	05	06	08	12	15							
5-83.541	Armorer	701	06	08	12	18	20	30	31	33	44			
5-83.541	Armorer, field service	701	06	08	12	20	31	33	44					
5-83.541	Armorer, traveling S. A. M.	701	06	08	12	18	20	30	31	33	44			
4-93.771	Assembler, small arms and equipment	701	06	08	12	18	20	30	31	33	44			
7-02.311	Assembler, tank and tractor	701	06	08	12	18	20	30	31	33	44			
7-02.311	Assembler, vehicle shop	701	06	08	12	18	20	30	31	33	44			
1-18.66	Assistant production estimator	701	01	03	05	12	13	15	17	30	44			
1-18.66	Assistant production follow-up man	701	01	03	05	12	13	15	17	30	44			
1-18.66	Assistant production route sheet writer	701	01	03	05	06	08	12	13	15	17	18	20	37	44
5-91.120	Attendant switchboard	701	06	08	12	18	20	24	37	44				
4-75.120	Benchman, machinist	701	06	08	18	20	24	30	33	37	44			
5-17.010	Benchman, small arms and equipment	701	06	08	12	18	20	24	30	31	33	37	44	
4-86.010	Blacksmith	701	06	08	18	20	30	31	33					
4-86.010	Blacksmith's helper	701	30											
4-85.100	Boilermaker	701	06	08	18	20	30	31	33					
5-92.768	Boss gang, mechanical trades	701	01	03	05	06	08	12	13	15	17	18	20	30	33	44
9-65.64	Boy, shop	701	06	08	12	18	20	24	30							
5-24.010	Bricklayer	701	31	33	44											
5-25.110	Carpenter	701	31	33	44											
5-26.100	Cement finisher	701	06	08	30	31	33	44								
1-18.66	Checker, shop	701	06	08	12	18	20	30	31	33	44					
4-82.010	Coremaker	701	06	08	12	18	20	30	31	33						
4-91.351	Cupola tender	701	30	31	33											
4-76.120	Diesetter	701	31	33	44											
4-76.020	Diesinker	701	06	08	12	18	20	30	31	33	44					
4-97.010	Electrician	701	30	31	33											
5-41.060	Engineman, locomotive	701	06	08	12	18	20	24								
7-23.940	Engineman, power roller	701	06	08	12	18	20	24	44							
7-10.012	Fabric worker	701	06	08	12	18	20	24	30	31	33	37	44			
5-92.311	Foreman and assistant, foundry	701	06	08	18	20	30	33								
5-92.391	Foreman and assistant, forge	701	06	08	18	20	30	33								
5-27.010	Foreman and assistant, paint	701	31	33	44											
5-91.701	Foreman and assistant, printing	701	06	08	12	18	20	30	31	33						
5-92.592	Foreman and assistant, sheetmetal	701	06	08	18	20	33	44								
4-85.010	Foreman and assistant, welding	701	06	08	12	18	20	30	33							
5-91.501	Foreman and assistant, woodworking	701	06	08	12	18	20	30	33	37						
4-93.771	Assembler, female	§ 303	06	08	18	20	30	31	33	37	44					

* Disability placement code is interpreted in table 4.
‡ Rock Island Arsenal, Rock Island, Ill., seventh region.
† Benicia Arsenal, Benicia, Calif., twelfth region.
§ Frankford Arsenal, Philadelphia, third region.

persons with a history of tuberculosis and are known to alter susceptibility to tuberculous infection, the commission, in designating placement codes for positions which have been reported to involve this hazard, has not listed such positions as offering placement potentialities for persons with a history of tuberculosis. Those positions which were reported as involving exposure to fumes or gases also were not considered for ex-tuberculous persons. Positions reported as having adverse environmental factors for ex-tuberculous patients included certain metal trades and foundry positions, some toolmaker and toolgager positions and positions involving metal polishing and battery making.

Since it is well recognized that fatigue is unfavorable to the welfare of persons with a history of tuberculosis, those positions which were reported as involving strenuous physical activities, such as heavy carrying, lifting or pushing, constant stair or ladder climbing and excessfatigue, such as age, sex, race, adaptability, experience and training.

The environmental working conditions mentioned in connection with tuberculosis were also considered detrimental to those persons suffering from asthma or bronchitis.

In brief, it can be stated that the guiding principle in the placement of persons with arrested, healed or cured tuberculosis has been full cognizance of the fact that tuberculosis by nature is a chronic relapsing disease and that functional and environmental factors of certain positions may alter bodily resistance and cause reactivation. Collapse therapy of any kind does not offer assurance of arrestment to the extent that working conditions which alter general bodily resistance can be ignored in placement activities.

Although this consideration, in connection with placement of ex-tuberculous persons, seemingly limits to a

large extent placement activity, a large number of skilled trades and light machine shop positions have been found on survey to be suitable for such persons and not to present the hazards discussed.

Heretofore very little has been done to effect placement of persons with heart disease in governmental industrial establishments. This defect is a common one and involves intelligent placement not only on the part of the employer but on the part of the medical advisers to management. Types of heart disease most frequently encountered on preemployment examinations for the federal civil service are rheumatic, hypertensive, syphilitic and coronary diseases.

The guiding principles in establishing disability placement codes relating to heart disease follow fairly closely the American Heart Association classifications. No attempt was made to interpolate in the disability placement code any consideration of the types of heart disease.

When surveys of positions indicated that the workers were performing duties in a damp environment or in an environment presenting sudden temperature changes, sentences will be added to the code to indicate that persons with a history of rheumatic disease should not be placed in these positions.

Persons with cardiovascular syphilis are considered the least satisfactory of all the cardiac patients from the standpoint of placement. The commission's statistics indicate that this defect has a high incidence in the laboring classes and in most instances incapacitates to the extent that vocational training and placement are difficult and, in view of the guarded prognosis of the disease, often inadvisable.

Persons with a history of coronary disease, manifested by angina pectoris, coronary thrombosis, cardiac asthma or paroxysmal dyspnea are not justifiable risks for initial placement in federal government industry.

Surveys have revealed a small number of positions in governmental industrial establishments in which persons with hypertensive heart disease may be placed, provided there is no history of decompensation.

Placement potentialities have been coded for a considerable number of machine-shop and drafting positions involving desk or bench duty. All positions in which the surveys disclosed that the performance of the duties involved climbing ladders, frequent climbing of stairs, stooping, pushing, crawling, frequent lifting or other types of arduous physical exertion have not been given disability classification codes to include cardiac disability.

Blind persons and persons with severe impairment of visual acuity receive very special consideration in placement. The commission's definition of a blind person is "A person with not more than 10 per cent visual acuity in the better eye when corrected by glasses or a visual acuity greater than 10 per cent but with a limitation in the field of vision such that the widest diameter of the visual field subtends on an angle no greater than 20 degrees."

The so-called industrially blind standard is considerably higher and may range from 20/70 to 20/100 (Snellen) with correction—that is, 63.8 per cent to 48.9 per cent visual efficiency with correction. Surveys have revealed numerous occupational and extraoccupational hazards in governmental industrial establishments which will limit placement of the blind, according to the commission's definition, to a very small number of positions, in sheltered environments, involving repetitive work in which a sense of touch alone is required (certain inspector positions). The further utilization of blind persons in additional positions will depend on the willingness of the management to furnish safe transportation facilities for the blind within industrial establishments.

The industrially blind and those persons who are blind in one eye only, with good vision in the other, represent an important group with placement potentialities as far as government industry is concerned. The surveys reported in a large establishment indicated that approximately 90 per cent of the positions could be filled by persons who are blind in one eye and have good vision in the other. Since it is questionable whether or not one eyed persons develop a true stereopsis or depth perception, it has not been considered wise to place these persons in dangerous positions such as those of crane operators working at a high elevation, operators of moving machinery, truck and tractor drivers and feeding machine operators and in structural and maintenance jobs in which the duties involve the use of scaffolding. In these positions surveys indicate that normal acuity, stereopsis, normal muscle balance and often normal color vision are essential. Poor distance vision, according to industrial standards, with good near vision is considered as being compatible with the efficient performance, with a minimum risk, of the duties of the following positions, in which extraoccupational hazards are not serious considerations: inspector, assorter, engineer and calibrating technician.

A large number of miscellaneous "in between jobs" in which unusual visual aptitudes are not required were discovered on survey. Such positions include laborer, certain types of mechanics, handyman, certain types of machinists and metalsmiths.

Those occupations which have been found on survey to be particularly hazardous, with the possibility of further damaging the visual apparatus, have not been coded to indicate that persons with one eye can be placed in these positions. Such positions include those in which corrosive solutions are used and those in which abrasive particles may be thrown into the eye by grinding or chipping tools.

The hard of hearing and the deaf group of the physically handicapped represent the largest group with placement potentialities. This fact has been recognized by the commission for some time, and under the provisions of an executive order of Dec. 1, 1908 deaf mutes and the hard of hearing are admitted to examinations for a large number of positions.

The recent surveys have disclosed that types of positions suitable for persons with hearing impairment are represented by a large number of jobs of the skilled, semiskilled or unskilled types that can be carried on without the need of extensive communication. The most suitable positions for the deaf have been found to be the positions of routine type in which the same operation is performed over and over again. The deaf are satisfactory employees in positions such as packer, checker, sorter, labeler, polisher, oiler and finisher and in a large number of similar positions.

The surveys reveal some positions in which it was apparent that deaf mutes might be better employees than

persons with normal hearing. Such positions include boiler maker and inspector of material equipment or inspectors of finished products where the need of communication is not important.

It is recognized that at present many hearing aids offer a benefit to the hard of hearing that is comparable to the benefit scientifically selected lenses offer to those with defective vision. Unfortunately there are still instruments on the market designed as hearing aids which lack efficiency, adaptability and durability. The efficient and serviceable hearing aid has broadened tremendously the placement potentialities of the hard of hearing group. Already a considerable number of the hard of hearing using efficient hearing aids have been employed in federal industry and in the federal civil service in general. Information derived from the complete survey will disclose an even larger group of positions in which persons who are hard of hearing but use efficient and serviceable hearing aids may be employed. Lip reading, motion pictures and familiarity of industrial vocabularies in training will broaden further the placement field in this class of defect.

TABLE 4.—*Disability Classifications with Code Numbers* *

	Code Number		Code Number
1. Orthopedic			
(a) Amputation of			
Arm [1]	01	Foot [1]	20
Arms	02	Feet	22
Hand [1]	03	Back	24
Hands	04	Hips or shoulders	26
Fingers [2]	05	2. Vision defects	
Leg [3]	06	Blind	28
Legs	07	Blind in one eye with good vision in the other, or impaired visual acuity in both eyes with satisfactory correction	30
Foot [1]	08		
Feet	09		
(b) Disability or deformity of		3. Hearing defects	
Hip or shoulder	12	Deaf [5]	31
Arm [1]	13	Hard of hearing [6]	33
Arms	14	4. Chronic diseases	
Hand [1]	15	Heart [7]	37
Hands	16	Tuberculosis (pulmonary) [8]	44
Fingers [4]	17		
Leg [1]	18		
Legs	19		

* A combination of disability code numbers listed for any particular position is not to be interpreted necessarily to indicate that a combination of all the defects would be acceptable for placement in that position.

1. With other member intact and fully functioning.
2. One or more fingers missing on secondary hand with good residual grasping power in that hand and normal function of primary hand. In some positions good grasping power not required in secondary hand.
3. Amputation of one lower extremity with satisfactory prosthesis and with other lower extremity intact and fully functioning.
4. One or more fingers disabled on secondary hand with good residual grasping power in that hand and normal function of primary hand. In some positions grasping power not required in secondary hand.
5. Sense of hearing nonfunctioning for ordinary purposes of life. Code number may include deaf mutes, depending on amount of communication required in routine performance of duties of position in question.
6. Sense of hearing, although defective, functional with or without hearing aid.
7. Organic heart disease, other than coronary disease, fully compensated without history of decompensation.
8. Tuberculosis healed for a period of at least one year and health otherwise good. For some positions of sedentary type and with suitable working environment, persons receiving collapse therapy may be considered.

In the placement of deaf and hard of hearing persons, extraoccupational hazards must be given due consideration. For example, a chipper in the navy yard may have hearing which is greatly diminished without affecting materially his efficiency or without his being a hazard to himself or others; however, owing to the fact that he is working in an open navy yard on ship construction around heavy moving machinery and locomotives, it is inadvisable to place him in an open navy yard, though he could work as an inside chipper. With very few exceptions, surveys have revealed placement potentialities for machine shop jobs or structural shop jobs for the hard of hearing and the deaf, and it is not expected that many difficult placement problems will arise in utilizing the services of the hard of hearing and the deaf.

In both groups, of course, consideration must be given to psychologic or emotional maladjustment, which occasionally accompanies these defects and may make the handicapped person an unsuitable employee. It will be important for those persons responsible for placement in federal establishments to determine whether deaf or hard of hearing persons who are under consideration for employment have a healthy attitude toward their defect or environment before placement is attempted.

The employment of women in industry was given its largest impetus by the industrial revolution in Great Britain in the early nineteenth century. The appearance of many new mechanical operations in industry at that time was largely responsible for this trend. Since that time women gradually have assumed an increased importance in the labor market, especially during wartime when the male labor supply is scarce.

As far as physical ability is concerned, some women could be placed in any industrial position filled by male workers, and most women, with proper training, could perform the duties of the majority of positions in industry with proper placement. Since a large number of women are limited in many respects as to physical ability to perform certain types of work in the industrial field and also have a high percentage of absenteeism due to illness, for the purpose of any placement program they must be considered as presenting problems in placement or as "physically handicapped." For this reason the commission, in making its surveys of industrial positions, has attempted also to determine which positions in government industry could be performed by women.

One ordnance establishment was found to be employing 50 per cent women in one of its shops. These female employees were engaged in many different operations, including the grinding, polishing and plating of mirrors, prism assembling and inspecting. It was found that their work was excellent, and for some operations, such as prism assembly, they were superior to men. Surveys reveal that in another ordnance establishment 85 per cent of the positions could be held by female employees; however, this establishment had very few female employees.

In coding positions which were found to be suitable for female employees and not already held by females, the commission followed the suitability classification as established by the U. S. Employment Service:

1. Positions in which women are now regularly employed.

2. Positions apparently suitable for women—those occupations in which women have been employed in some establishments in some parts of the country, or occupations in which there is no apparent factor that would bar women.

3. Positions partially suitable for women—those occupations which have generally been considered to be suitable only for men, but which, on analysis, were found to contain certain phases that did not entail excessive physical exertion and that could be taught within a reasonably short time. For example, it usually takes years of training to become efficient in all aspects of the position of precision lens grinder. Certain phases, however, such as blocking, cementing and inspecting, can be taught within a comparatively short time, and women have been found to be very adaptable to these tasks.

In utilizing the foregoing classification the commission gave consideration to the following factors in coding positions reported on the surveys:

1. *Factors Which Depend on the Female Constitution.*—Authorities disagree on the importance of the difference in the constitutional makeup between men and women and its relation to ability to perform heavy labor. However, it has been decided for the present that placement of women in government industry should be effected in positions involving duties of semiarduous or moderate nature. There is also disagreement on the influence of particular types of occupations on the menstrual cycle. In this connection most evidence points to the favorability of positions which alternate between standing and sitting for female employees, and such positions have been considered ideal for placement.

2. *Factors Due to the Nature of the Work Itself.*—Women have been found to be particularly adaptable to industrial discipline and to have a remarkable capacity for performing repetitive and often monotonous work which calls for manual dexterity, precision and patience. A large number of women have already been employed successfully in federal arsenals, ordnance plants, quartermaster depots and navy yards doing work of this nature. Such positions include those of explosives operators, gas mask inspectors, aircraft material workers, leather and cabinet workers, parachute repairers and related positions.

Those positions disclosed on survey as involving heavy lifting or as being hazardous were not considered suitable for women in establishing the placement codes.

The foregoing discussion of the placement of the physically handicapped in government industry represents the picture as it is today. Depending on the duration of the war and resulting shortages in the labor supply, the picture will change. A greater number of additional positions may have to be found for the physically handicapped and a corresponding number of handicapped trained for these positions. Since the commission's placement manual will be in a loose-leaf form, allowing for changes in code designations either for the job classification or for disability, changing trends in the industrial field and in labor supply are provided for.

The commission's program will serve two purposes: It will promote the war effort by facilitating the training, recruitment and placement of qualified physically handicapped persons where they are needed; and it will offer the commission excellent experience which will be of great value after the war in utilizing the services of disabled veterans and those disabled as a result of accelerated industrial activity. It is expected that, depending on the duration of the war, large numbers of disabled veterans and industrial workers will be placed on the labor market.

Two Roads Are Always Open.—A student of medicine begins his novitiate when he goes to medical school; but he should have entered upon his apprenticeship as a doctor many years before, when for the first time he was allowed free choice in his earlier education. At that point two roads are always open: one, straight and narrow, that leads through the sciences with only a few brief detours into general knowledge; the other, circuitous and serpentine, that wanders far afield, dips more deeply into the wider realms of learning, and returns to the highway only when necessity demands—this is the more entrancing road, for there are more flowers beside it, and from the ancient hills that it surmounts one sees the world more clearly. Although the doctor who has traveled this road must leave it for a space of years when his novitiate begins, when leisure later comes he can return to explore the inviting bypaths that branch on either side; but to him who has never trod it they are forever forbidden.—Irving, Frederick C.: Safe Deliverance, Boston, Houghton Mifflin Company, 1942.

THERAPEUTICS OF PNEUMONIA ON A STATEWIDE BASIS

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The application of approved methods in the diagnosis and treatment of the different kinds of pneumonia has brought about a spectacular diminution in the mortality rate from this group of diseases during the last five years. Introduction of the sulfonamide compounds has made possible a therapeutic approach to the problem which, if put to maximum use, should directly remove pneumonia as one of the leading causes of death.

The persistence of a relatively high mortality rate throughout the nation, even though treatment under carefully controlled conditions has produced a conspicuous decrease in the death rate, remains one of the unsolved problems of the medical profession. For the nation at large the rate is somewhere between 12 per cent and 15 per cent. In well organized clinics and hospitals, where pneumonia is regarded as one of the great medical emergencies, modern methods of treatment have been so efficient that from time to time groups of 100 patients with pneumonia have been treated without the loss of a single life.

PIONEERS IN STATEWIDE CONTROL

To be more widely effective, the therapeutics of pneumonia, in the light of modern scientific knowledge, should be planned on a statewide basis. Only in this way will the lag between known medical science and its application be reduced to a minimum. Facilities for diagnosis, correct therapy and the collection of statistics need be set up for the assistance of the general practitioner.

Even prior to the changes in treatment occasioned by the advent of the sulfonamide compounds, Massachusetts and New York united the resources of their respective states and used the different kinds of serum that were reasonably satisfactory in treating pneumonia. The entry of the sulfonamide compounds at a time when serum therapy was becoming more and more effective, placed in the hands of the medical profession a double barreled weapon for the treatment of pneumonia that has stricken it from the upper position in the list of mortality statistics.

INCIDENCE

In 1936 more than 133,000 patients died from pneumonia and influenza in the United States. In the same year the mortality from pneumonia in Pennsylvania was more than 9,000 persons, ranking sixth on the list of causes of death.[1]

Since it is generally conceded that without the benefit of serum or sulfonamide therapy a mortality rate of approximately 25 per cent may be assumed for all cases of pneumonia, it is reasonable to suppose that about 35,000 cases of pneumonia occur in Pennsylvania each

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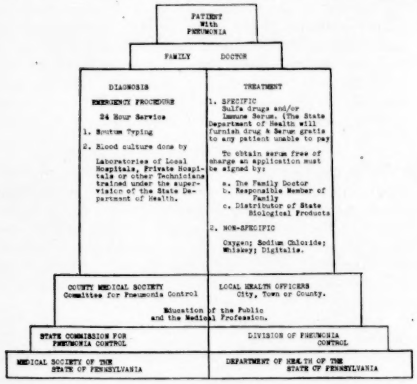
1. MacBride-Dexter, Edith, and Bortz, E. L.: Pneumonia Control: Plan for Pennsylvania, Pennsylvania M. J. **41**:279 (Jan.) 1938.

year. Pennsylvania is an industrial center with slightly more than twelve thousand physicians for a population of slightly less than 11,000,000.[2]

From July 1, 1937 to June 30, 1938 Pennsylvania had 7,117 pneumonia deaths, and during the same period there were approximately 1,200 patients with pneumonia treated with agents made available through the pneumonia control program.[3]

THE APPROACH TO THE TREATMENT OF PNEUMONIA ON A STATEWIDE BASIS IN PENNSYLVANIA

In addition to supplying general practitioners with weapons with which to fight this disease, there is need for a certain amount of organization. Recognition of these combined factors led the officials of organized medicine in Pennsylvania to establish the Commission for the Study of Pneumonia Control in 1936, which immediately collaborated with the department of health. Since knowledge of the disease had thrown it into a class susceptible to control on a broad geographic basis, the physicians of the state enthusiastically welcomed such an idea.


PATIENT With PNEUMONIA
FAMILY
DOCTOR
DIAGNOSIS
EMERGENCY PROCEDURE
24 Hour Service
1. Sputum Typing
2. Blood culture done by
Laboratories of Local Hospitals, Private Hospitals or other Technicians trained under the supervision of the State Department of Health.
TREATMENT
1. SPECIFIC
Sulfa drugs and/or
Immune Serum. (The State Department of Health will furnish drug & Serum gratis to any patient unable to pay
To obtain serum free of charge an application must be signed by:
a. The Family Doctor
b. Responsible Member of Family
c. Distributor of State Biological Products
2. NON-SPECIFIC
Oxygen; Sodium Chloride; Whitney; Digitalis.
COUNTY MEDICAL SOCIETY
Committee for Pneumonia Control
LOCAL HEALTH OFFICERS
City, Town or County.
Education of the Public and the Medical Profession.
STATE COMMISSION FOR PNEUMONIA CONTROL
DIVISION OF PNEUMONIA CONTROL
MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA
DEPARTMENT OF HEALTH OF THE STATE OF PENNSYLVANIA

Approach to the treatment of pneumonia on a statewide basis in Pennsylvania.

Pneumonia was made a reportable disease in July 1937, and a systematic campaign was started to make it, in the minds of the medical profession, the great medical emergency. Regarding pneumonia as such, physicians are impressed with the importance of prompt diagnosis and adequate treatment. The approach to the treatment of pneumonia on a statewide basis is outlined here.

OBJECTIVES

Before proceeding further, the state department of health, which in 1939 organized the Division of Pneumonia Control, and the commission personnel realized the necessity for drawing up a definite list of objectives. These were:

1. To reduce the mortality from pneumonia in Pennsylvania.
2. To furnish every practicing physician in the state with the latest data and to have necessary facilities available for prompt and correct diagnosis.
3. To have serum placed at the disposal of the physician at any hour of the day or night. First sulfapyridine was made available to every physician throughout the commonwealth, then in November 1940 sulfathiazole and in January 1942 sulfadiazine were likewise placed at the disposal of the physicians of the state.
4. To hold refresher courses.
5. To educate the public.
6. To carry on epidemiologic studies of pneumonia in Pennsylvania.
7. To identify in every case, if possible, the cause of death when pneumonia occurred just previous to death.
8. To compare the values of various therapeutic agents.
9. To encourage research in laboratory, clinic and field.

PRESENTATION

With a good foundation laid, the commission, with the support of the public health officials, was ready to spread before the laity and the profession of the state ways and means for intensively attacking the pneumonia problem.

To aid in this presentation, representatives of organized medicine worked in close harmony. Identified with the work were the Medical Society of the State of Pennsylvania, through its Commission for the Study of Pneumonia Control; the Department of Health with its Division of Pneumonia Control and Division of Health Education, and, last but not least, influential lay groups.

For purposes of medical organization the Medical Society of the State of Pennsylvania divided the commonwealth into twelve councilor districts, each to include from one to seven counties. The Commission for the Study of Pneumonia Control consists of representatives from all of the councilor districts and at the present time is made up of nineteen physicians.

ROLE OF COUNTY MEDICAL SOCIETIES

To extend the benefits of modern therapy to the innermost recesses of the state, pneumonia control committees were organized in fifty-eight of the county medical societies of the commonwealth.

Through the committee of the county society an endeavor is made to contact every practitioner; his cooperation is sought in reporting pneumonia cases, and recent literature and information are placed at his disposal. Local committees have been instrumental in encouraging general practitioners to utilize all the facilities made available through an alert department of health and its Division of Pneumonia Control.

ALLIED GROUPS

No work can be carried through successfully without the full cooperation of all parties concerned. Pennsylvania was exceedingly fortunate in obtaining this cooperation.

The Pennsylvania State Nurses Association has appointed a representative in each district to help the physicians carry on the educational work. They have likewise stressed the nursing of pneumonia patients to undergraduates throughout the entire state.

Also, the visiting nurse societies in the metropolitan areas have cooperated splendidly in furnishing the necessary nursing care to patients living in congested districts whose limitations are apparent.

MEASURES OF ATTACK

1. *Pneumonia Control Centers.*—There are 178 pneumonia control centers, the majority in hospitals, now established at strategic areas throughout Pennsylvania.

2. Bortz, E. L.: Pneumonia in Pennsylvania, Tr. Am. Clin. & Climat. A. (1940) **56**: 103, 1941.
3. Annual Report of the Pennsylvania Pneumonia Control Division, July 1, 1940 to June 30, 1941.

Every center is capable of sputum diagnosis, blood culture studies and the furnishing of simple laboratory procedures.

Fifty-three of the pneumonia control centers are classified as major stations, having available serum for types I, II, V, VIII and XIV pneumococcus infections. The remaining stations are furnished with serum for types I and II. Sulfapyridine and sulfathiazole are available at all control stations.

2. *Treatment.*—The procedure in Pennsylvania is to advocate the use of sulfathiazole or sulfadiazine for

During the period of 1940-1941, 68 patients were treated with serum alone, with a total of 20 deaths, or a mortality rate of 29.4 per cent.

All types of therapeutic serum are held in readiness twenty-four hours a day at the office of the Division of Pneumonia Control in Harrisburg, and for patients who cannot afford to pay the serum is granted without charge.

3. *Lay Education.*—Under the leadership of organized medicine an elaborate educational campaign has been carried on for the past five years. The Division

TABLE 1.—*Distribution of Cases and Mortality According to Pneumococcus Type by Treatment*

	Sulfapyridine						Sulfathiazole						Sulfadiazine			Serum			Other Therapy			Nonspecific Therapy			Totals		
	Without Serum			With Serum			Without Serum			With Serum																	
Type	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent
Totals	2,092	344	11.5	258	59	22.9	5,101	501	9.8	440	93	21.1	196	20	10.2	68	20	29.4	34	3	8.8	206	47	22.8	9,396	1,087	11.7
1	108	8	7.4	68	11	16.2	195	6	3.1	109	14	12.8	24	2	8.3	14	2	14.3	4	..	....	2	..	....	524	43	8.2
2	76	4	5.3	38	7	18.4	140	7	5.0	64	10	15.6	6	..	....	8	2	25.0	..	..	....	6	1	16.7	338	31	9.2
3	105	7	6.7	44	17	38.6	187	20	10.7	84	33	39.3	20	7	35.0	9	3	33.3	6	..	....	9	5	55.6	464	92	19.8
4	43	5	11.6	10	4	40	64	6	9.4	21	2	9.5	14	1	7.1	2	2	100.0	1	..	....	4	..	....	159	20	12.6
5	22	..	....	13	3	23.1	54	3	5.6	19	8	42.1	8	..	....	3	..	....	..	..	....	3	2	66.7	123	16	13.1
6	33	6	18.2	9	3	33.3	49	3	6.1	7	1	14.3	4	1	25.0	1	1	100.0	..	..	....	1	..	....	104	15	14.4
7	48	5	10.4	13	..	....	90	3	3.3	24	4	16.7	13	3	23.1	6	1	16.7	2	..	....	4	2	50.0	200	18	9.0
8	41	5	12.2	22	3	13.6	91	1	1.1	31	5	16.1	18	..	....	9	2	22.2	1	..	....	3	..	....	216	16	7.4
9	12	2	16.7	2	1	50.0	26	4	15.4	6	1	16.7	2	..	....	2	1	50.0	1	..	....	..	..	....	51	9	17.6
10	8	..	....	..	..	....	15	..	....	1	..	....	1	..	....	1	..	....	..	..	....	..	..	....	26	..	....
11	6	1	16.7	2	..	....	8	1	12.5	3	..	....	3	1	33.3	2	2	100.0	..	..	....	1	..	....	25	5	20.0
12	11	3	27.3	2	1	50.0	15	1	6.7	2	..	....	4	..	....	..	..	....	..	..	....	..	..	....	34	5	14.7
13	10	2	20.0	..	..	....	30	4	10.0	3	1	33.3	2	..	....	1	..	....	1	..	....	1	..	....	48	6	12.5
14	20	1	5.0	4	1	25.0	37	1	2.7	13	1	7.7	5	1	20.0	3	2	66.7	..	..	....	..	..	....	82	7	8.5
15	6	..	....	2	1	50.0	9	1	11.1	..	..	....	..	..	....	1	..	....	..	..	....	2	..	....	20	2	10.0
16	10	2	20.0	1	..	....	25	1	4.0	2	..	....	3	..	....	1	..	....	1	..	....	3	..	....	46	3	6.5
17	11	..	....	..	..	....	15	3	20.0	2	..	....	1	..	....	..	..	....	..	..	....	1	..	....	30	3	10.0
18	8	1	12.5	5	2	40.0	33	1	3.0	5	1	20.0	1	..	....	..	..	....	1	..	....	5	1	20.0	58	6	10.3
19	17	1	5.9	3	..	....	38	7	18.4	8	2	25.0	4	..	....	..	..	....	..	..	....	2	..	....	72	10	13.9
20	13	..	....	4	1	25.0	11	1	9.1	7	1	14.3	3	..	....	..	..	....	..	..	....	1	..	....	39	3	7.69
21	7	..	....	..	..	....	12	2	16.7	1	..	....	..	..	....	..	..	....	..	..	....	..	..	....	20	2	10.00
22	11	2	18.2	1	..	....	14	1	7.1	3	1	33.3	..	..	....	2	1	50.0	..	..	....	1	..	....	32	5	15.63
23	7	1	14.3	2	2	100.0	18	1	5.6	3	3	100.0	..	..	....	..	..	....	..	..	....	..	..	....	30	7	23.33
24	6	1	16.7	1	..	....	10	..	....	2	..	....	..	..	....	..	..	....	..	..	....	2	2	100.0	21	3	14.29
25	5	..	....	2	..	....	11	2	18.2	2	..	....	2	1	50.0	..	..	....	..	..	....	..	..	....	22	3	13.64
27	5	..	....	1	..	....	13	1	7.7	2	..	....	1	..	....	..	..	....	..	..	....	1	..	....	23	1	4.35
28	3	..	....	1	..	....	5	1	20.0	3	1	33.3	..	..	....	..	..	....	1	..	....	..	..	....	13	2	15.38
29	10	1	10.0	1	..	....	17	2	11.8	1	..	....	2	..	....	..	..	....	..	..	....	..	..	....	31	3	9.68
31	4	1	25.0	..	..	....	10	1	10.0	1	..	....	..	..	....	..	..	....	..	..	....	..	..	....	15	2	13.33
32	1	..	....	..	..	....	9	..	....	1	1	100.0	1	..	....	1	..	....	..	..	....	..	..	....	13	1	7.69
33	3	1	33.3	..	..	....	13	3	23.1	1	1	100.0	..	..	....	..	..	....	..	..	....	2	..	....	19	5	26.32
Total	670	60	9.0	251	57	22.7	1,264	87	6.9	431	91	21.1	142	17	11.9	66	19	28.8	19	..	....	54	13	24.1	2,897	344	11.87
00	1,915	233	12.2	3	..	....	2,866	313	10.8	3	..	....	3	2	66.7	1	1	100.0	6	2	33.3	119	29	24.4	4,946	580	11.73
40	10	2	20.0	1	1	100.0	25	2	8.0	5	1	20.0	7	..	....	..	..	....	..	..	....	..	..	....	48	6	12.50
88	189	25	13.2	1	1	100.0	518	53	10.2	1	1	100.0	12	..	....	1	..	....	6	1	16.7	22	3	13.6	750	84	11.20
99	208	24	11.5	2	..	....	398	46	11.6	..	..	....	32	1	3.1	..	..	....	3	..	....	11	2	18.2	654	73	11.62
Total	2,322	284	12.2	7	2	28.6	3,837	414	10.8	9	2	22.2	54	3	3.1	2	1	50.0	15	3	20.0	152	34	22.4	6,398	743	11.61

All tables presented herein are taken from the annual report of the Pennsylvania Pneumonia Control Division of the Department of Health, Harrisburg, Pa., August 1941.

No. 1-33 signify the specific pneumococcic types 1-33; 00 indicates that no attempt was made at typing; 40, more than one specific typed pneumococcus present; 88, sputum typed but no pneumococci were found; 99, typed and pneumococci were found but no specific type identified.

twenty-four hours as soon as the definite diagnosis of pneumonia has been made. If the patient is desperately ill and if the blood culture is found to be positive, serum in adequate quantity is immediately recommended. Since January 1942, sulfadiazine has been made available through the Division of Pneumonia Control, and, at the present time, it is the drug of choice in the treatment of pneumococcic pneumonia.

Although, at the outset of the campaign, the importance of a bacteriologic diagnosis was stressed, it is now evident that during the last two years, since the sulfonamide compounds have become so prominent, physicians generally disregard bacteriologic studies. That this practice is to be decried must be emphasized, because in selected instances the use of serum has often proved life saving, particularly for patients who had reacted unfavorably to the sulfonamide compounds.

of Health Education, under the expert supervision of Mrs. Edna M. Kech, during the period from Jan. 1, 1941 to Dec. 31, 1941 arranged one hundred and twenty-nine pneumonia meetings with a total attendance of 46,250. During this period seven hundred physicians addressed various lay groups at the meetings which had been arranged for by Mrs. Kech. Commendation is due the practitioners for their support in this lay education program.

In addition to the meetings, a motion picture on pneumonia has been prepared and in four months has been shown one hundred and ninety-nine times, to a total attendance of 22,822 persons.

4. *Education for the Physician.*—For the medical profession seven semiannual conferences have been conducted. The attendance at each varied from seventy-five to one hundred and seventy-five physicians. Recent

work on pneumonia was reviewed at these meetings and recommendations were made to the local county medical society. After reports from all of the societies a question and answer period was held, thereby giving all the opportunity to participate.

Diagnosis, as the key to the successful treatment of pneumonia, has been emphasized at all refresher courses that have been given in Pennsylvania. Physicians have been warned not to use serum in the absence of a specific bacteriologic diagnosis. Reports have indicated that the practice of prescribing one of the sulfonamide compounds for any infection of the respiratory tract

Now with the active participation of the Division of Pneumonia Control of the Department of Health, under the capable leadership of Dr. Dale C. Stahle, the reporting and tabulating of cases for statistics is carried on in a more efficient manner.

The most recent statistics from this department show that between the period of July 1, 1941 and Jan. 1, 1942 1,445 cases of pneumonia have been reported with 162 deaths. Allowing for final corrections, the approximate mortality is 10 per cent. From July 1, 1940 to June 30, 1941 1,500 private cases were reported to the Division of Pneumonia Control.

TABLE 2.—*Mortality by Race and Place of Treatment*

	Sulfapyridine						Sulfathiazole						Sulfadiazine			Serum			Other Therapy			Nonspecific Therapy			Totals		
	Without Serum			With Serum			Without Serum			With Serum																	
	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent
Totals	2,992	344	11.5	258	59	22.9	5,101	501	9.8	440	93	21.1	196	20	10.2	68	20	29.4	34	3	8.8	206	47	22.8	9,295	1,087	11.69
White	2,682	315	11.7	220	47	21.4	4,494	451	10.0	383	85	22.2	106	14	13.2	57	16	28.0	17	2	11.8	187	45	24.1	8,146	975	11.97
Negro	291	23	7.9	36	11	30.6	546	44	8.1	55	8	14.5	90	6	6.7	11	4	36.4	17	1	5.9	17	1	5.9	1,063	98	9.22
Not specified	19	6	31.6	2	1	50.0	61	6	9.8	2	..	....	..	..	....	..	..	....	..	..	....	2	1	50.0	86	14	16.28
Home	715	37	5.2	67	11	16.4	1,052	50	4.7	65	6	9.2	..	..	....	6	1	16.7	5	..	....	46	4	8.7	1,956	109	5.57
Hospital	2,273	306	13.5	191	48	25.1	4,041	451	11.2	375	87	23.2	196	20	10.2	62	19	30.6	29	3	10.3	159	43	27.0	7,326	977	13.34
Not specified	4	1	25.0	..	..	....	8	..	....	..	..	....	..	..	....	..	..	....	..	..	....	1	..	....	13	1	7.69

TABLE 3.—*Distribution of Cases by Age Group*

	Sulfapyridine						Sulfathiazole						Sulfadiazine			Serum			Other Therapy			Nonspecific Therapy			Totals			
	Without Serum			With Serum			Without Serum			With Serum																		
	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Percentage of Total
Totals	2,992	344	11.5	258	59	22.9	5,101	501	9.8	440	93	2.11	196	20	10.2	68	20	29.4	34	3	8.8	206	47	22.8	9,295	1,087	11.69	
Under 2	629	66	10.6	8	2	25.0	837	78	9.3	8	1	12.5	..	..	....	3	1	33.3	1	..	....	35	10	28.6	1,512	158	10.45	16.3
2-12	643	18	2.8	8	1	12.5	913	19	2.1	13	3	23.1	3	..	....	1	..	....	5	1	20.0	27	2	7.4	1,613	44	2.73	17.3
13-40	670	39	5.8	102	11	10.8	1,272	54	4.2	168	10	5.9	112	1	0.9	29	4	13.7	14	1	7.1	56	6	10.7	2,423	126	5.20	26.1
41-60	532	80	15.0	82	25	30.5	1,045	135	12.9	157	44	28.0	54	8	14.8	18	7	38.9	12	..	....	42	13	30.9	1,942	312	16.07	20.9
Over 60	409	139	34.0	44	18	40.9	805	211	26.2	74	34	45.9	26	11	42.3	12	6	50.0	2	1	50.0	35	15	42.9	1,407	435	30.92	15.1
Unspecified	118	2	1.7	14	2	14.3	229	4	1.7	20	1	5.0	1	..	....	5	2	40.0	..	..	....	11	1	9.1	398	12	3.02	4.3

in the absence of a specific bacteriologic diagnosis was widespread.

To keep the vital facts before the general practitioners, bulletins are flashed throughout the commonwealth at intermittent periods. The latest series of these has been compiled into a brochure entitled "New Facts on Pneumonia" and is distributed to every county medical society, through which the facts are made available to every practicing physician in the state.

5. *Case Reporting.*—No statistics are available regarding the extent of the pneumonia problem previous to 1937, at which time it was made a reportable disease. The Commission of Pneumonia Control, before the creation of the Division of Pneumonia Control in the Department of Health, attempted to collect statistics through the members of the commission and local representatives. A series of 5,977 cases in the 1938-1939 season was compiled by the Sub-Committee on Statistics of the State Commission.

STATISTICS

From a recent Metropolitan Life Insurance Company survey, this disease caused only 41.9 deaths per hundred thousand policyholders during the first three months of the current year. This is 18 per cent below the rate in the same period of 1941, 37 per cent below the average for the last four years and 61 per cent below the average for the five years previous to the advent of the sulfonamide compounds.

A careful study of the mortality data available since the turn of the century indicates that there was a slight general trend downward of the death rate even before the efficacy of the present agents was developed. Since 1937, however, there has been a sharp and continuous declination of the mortality curve effective for men, women and children of all age groups.

As a disease, pneumonia is very much on the spot at the present time. For every patient who dies some one is usually to blame; either the patient, owing to

lack of prompt resort to modern medical care, or the attending physician from lack of knowledge of what modern science has to offer. In the absence of pronounced complications and given a reasonably good constitution, the patient suffering from pneumonia today should not die.

In a closely reasoned and well documented paper presented a year ago, Stahle demonstrated a mortality rate of 9.19 per cent in a series of 15,251 patients treated by the physicians of Pennsylvania.[4] Experience with the sulfonamide compounds has been so satisfactory that the attending physicians have reduced the use of serum to a minimum (table 1).

The supervision and collection of data dealing with the pneumonia problem in highly industrial communities, such as Pennsylvania, is a huge task. Organized medicine and the department of health have waged a campaign which has had the unqualified support of general practitioners, who, in the last analysis, are the key men in the control of pneumonia.

Each year, approximately three thousand physicians, or 97 per cent of the total number utilizing the facilities of the distributing centers, send in report cards on their cases. These cards, which are furnished by the Division of Pneumonia Control, permit accurate classification of the cases with reference to age, sex, color, duration of the disease, frequently whether or not there is a positive blood culture, and, when given, the type of organism together with the kind of therapeutic agent and quantity administered. Red tape has been reduced to a minimum. When the cards are received in the Bureau of Pneumonia Control they are directed to the Bureau of Vital Statistics. Every case reported is classified and coded on an international code, which eliminates all questionable features of the cases and places them in the proper category.

In 1936, at a time when there was no way of collecting statistics for this purpose, the approximate number

TABLE 4.—*Incidence of Associated Diseases and Effect on Case Fatality Rate*

Type	Sulfapyridine: Without Serum			Sulfapyridine: With Serum			Sulfathiazole: Without Serum			Sulfathiazole: With Serum			Sulfadiazine			Serum			Other Therapy			Nonspecific Therapy			Totals		
	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent	Cases	Deaths	Per Cent
Totals	940	242	25.7	93	31	33.3	1,647	397	24.1	154	63	40.9	56	15	26.8	33	13	39.4	4	2	50.0	101	36	35.6	3,028	799	26.4
Pregnancy	28	4	14.3	4	1	25.0	45	6	13.3	1	..	....	2	..	....	..	..	....	..	..	....	..	..	....	80	11	13.6
Puerperium	17	..	....	3	1	33.3	25	2	8.0	....	..	....	..	..	....	..	..	....	..	..	....	1	..	....	46	3	6.5
Surgery	164	26	15.8	11	3	27.3	232	34	14.7	27	4	14.8	1	..	....	5	..	....	..	..	....	8	1	12.5	448	68	15.2
Heart disease	244	91	37.3	31	12	38.7	453	156	34.4	52	28	53.8	15	7	46.7	9	7	77.8	2	1	50.0	35	17	48.6	841	319	37.9
Tuberculosis	38	10	26.3	5	1	20.0	68	15	22.1	3	1	33.3	4	1	25.0	2	..	....	..	..	....	3	..	....	123	28	22.8
Measles	6	..	....	1	..	....	33	3	9.1	..	..	....	..	..	....	..	..	....	..	..	....	3	..	....	43	3	7.0
Pertussis	20	..	....	2	1	50.0	21	1	4.8	..	..	....	..	..	....	..	..	....	..	..	....	1	..	....	44	2	4.6
Other infections	147	25	17.0	13	5	38.5	288	55	19.1	28	10	35.7	16	1	6.2	7	3	42.9	1	..	....	22	6	27.3	522	105	20.1
Diabetes	45	11	24.4	1	..	....	81	22	27.2	8	2	25.0	4	1	25.0	1	..	....	1	1	100.0	4	1	25.0	145	38	26.2
Cancer	16	8	50.0	..	..	....	30	13	43.3	1	1	100.0	..	..	....	..	..	....	..	..	....	2	2	100.0	49	24	49.0
Alcoholism	31	13	41.9	12	2	16.7	40	10	25.0	17	11	64.7	6	..	....	4	1	25.0	..	..	....	4	1	25.0	114	38	33.3
Other conditions	184	54	29.3	10	5	50.0	331	80	24.2	17	6	35.3	8	5	62.5	5	2	40.0	..	..	....	18	8	44.4	573	160	27.9

TABLE 5.—*Postpneumonic Complications*

Type	Sulfapyridine: Without Serum			Sulfapyridine: With Serum			Sulfathiazole: Without Serum			Sulfathiazole: With Serum			Sulfadiazine			Serum			Other Therapy			Nonspecific Therapy			Totals		
	Cases	Deaths	Percentage of Total*	Cases	Deaths	Percentage of Total*	Cases	Deaths	Percentage of Total*	Cases	Deaths	Percentage of Total*	Cases	Deaths	Percentage of Total*	Cases	Deaths	Percentage of Total*	Cases	Deaths	Percentage of Total*	Cases	Deaths	Percentage of Total*	Cases	Deaths	Percentage of Total*
Totals	278	53	9.3	38	15	14.7	523	77	10.2	80	28	18.2	14	4	7.1	15	9	22.1	3	1	8.8	20	6	9.7	971	193	10.5
Serous pleural effusions	77	11	2.6	8	..	3.1	146	15	2.9	29	8	6.6	8	1	4.1	2	1	2.9	1	1	2.9	9	4	4.4	280	41	3.0
Empyema	35	10	1.2	11	2	4.3	82	16	1.6	17	4	3.9	3	1	1.5	2	..	2.9	..	..	....	1	..	0.5	151	33	1.6
Otitis media	125	12	4.2	6	4	2.3	193	12	3.8	13	2	3.0	..	..	....	4	2	5.9	1	..	2.9	5	..	2.4	347	32	3.7
Pericarditis	2	2	0.1	1	1	0.4	9	5	0.2	2	2	0.5	1	1	0.5	..	..	....	..	..	....	..	..	....	15	11	0.2
Meningitis	11	7	0.4	9	7	3.5	16	13	0.3	7	6	1.6	..	..	....	3	3	4.4	..	..	....	1	1	0.5	47	37	0.5
Lung abscess	8	5	0.3	..	..	....	24	5	0.5	6	1	1.4	..	..	....	1	1	1.5	1	..	2.9	..	..	....	40	12	0.4
Endocarditis	1	..	0.03	..	..	....	2	1	0.04	2	2	0.5	..	..	...	1	1	1.5	..	..	....	..	..	....	6	4	0.1
Others	19	6	0.6	3	1	1.2	51	10	1.0	4	3	0.9	2	1	1.0	2	1	2.9	..	..	....	4	1	1.9	85	23	0.9

* Percentage of all treated cases developing these complications.

4. Stahle, D. C.: A Clinical Analysis of Fifteen Thousand Cases of Pneumonia, J. A. M. A. **118**: 440 (Feb. 7) 1942.

of pneumonia deaths in Pennsylvania was 9,000. The most recent study by the Division of Pneumonia Control shows an incidence of 9,295 from July 1, 1940 to June 30, 1941, with a total mortality rate of 11.69 per cent. While this indicates a substantial drop over the former rate, it nevertheless is still too high.

Of 1,956 patients treated at home there were 109 deaths, or a rate of 5.57 per cent. Of 7,326 patients treated in the hospital there were 977 deaths, or a rate of 13.34 per cent. This can readily be explained by the fact that the patients with the more serious pneumonia had been sent to the hospital (tables 2 and 3).

In a critical appraisal of statistics, caution must be paid to the presence of complicating factors in order to dismiss the possibility of deaths caused by complications per se being counted primarily as pneumonia deaths. Example: Of 242 patients with pneumonia, 31 had meningitis, 5 had a pulmonary embolism, 5 had pericarditis, 15 had cancer and 39 had heart disease, while

TABLE 6.—*Pneumonia Cases—Death Ascribed to the Following Conditions*

Meningitis	31
Pulmonary embolism	5
Pericarditis	5
Puerperal sepsis—septicemia	4
Nephritis	3
Cancer	15
Heart disease	39
Tuberculosis	6
Lung abscess	3
Cellulitis	1
Subacute bacterial endocarditis	6
Peritonitis	10
Mechanical injury	5
Cerebral thrombosis	25
Blood dyscrasia	4
Surgery	4
Diabetes	3
Uremia	6
Drug	1
Serum	1
Death within 24 hours	54
Unspecified	11
Total	242

10 had peritonitis and 25 had cerebral thrombosis (table 6). Of this series of 242 patients, 54 died within twenty-four hours.

Resort to the use of effective chemotherapeutic agents early in the treatment of respiratory infection has cut down the number of pneumonia deaths. Likewise, fewer patients are being sent to the hospital. It may be that during the next few years a plateau in the mortality rate will have been reached until the frontiers of pneumonia control are extended to include immunization and prophylaxis.

CONCLUSION

According to Haven Emerson, the preservation of community health is the major responsibility of the public health officials, whereas the problem of the individual and his health needs is the domain of the general practitioner.

Pneumonia control is the joint responsibility of the public health representative and the private physician. The public health official without the utmost cooperation on the part of the medical profession cannot hope for any substantial success in wiping out the ravages of pneumonia; nor can the private physician nor the county or state society carry on a campaign to reduce the death rate from pneumonia without the aid and cooperation of the department of health.

Pneumonia is a specific disease. It has a definite onset and method of spread. Effective therapeutic agents are now available. The problem, then, is to have a highly trained corps of workers in the field; physicians and nurses who will regard pneumonia as the great medical emergency, strive to make an accurate and prompt diagnosis and institute treatment immediately following diagnosis.

Instructing the public to avoid contact with respiratory infections and maintain sound health habits with regard to diet, elimination and rest and visit promptly the family physician when troublesome symptoms occur serves a twofold purpose: First, it maintains the public resistance at an optimum level; second, it places the patient in the hands of the physician at the earliest time in the event that involvement of a lung occurs.

Prompt action on the part of an enlightened laity and a well trained, alert medical profession would reduce the mortality rate from pneumonia to a spectacular low.

SUMMARY

Mortality from pneumonia is steadily decreasing. To propagate this trend further, modern methods of attack have been evolved. Organization on a statewide basis in Pennsylvania has played no small part in this decline. In 1936 there were approximately 9,000 pneumonia deaths; during the 1937-1938 period 7,117 persons died from this disease; from July 1, 1940 to June 30, 1941 9,295 cases were reported, with a mortality of 1,087, and the latest statistics show that from July 1, 1941 to Jan. 1, 1942 the total number of pneumonia cases reported was 1,445 with one hundred and sixty-two deaths.

One hundred and seventy-eight pneumonia control centers, located at strategic points throughout the commonwealth, are prepared to furnish the physicians with necessary laboratory procedures, serum and sulfonamide compounds for treatment.

Meetings for the public are being routinely conducted for education in the rudiments of precaution and prompt action when a respiratory infection appears.

An extensive series of meetings for physicians has been conducted annually since 1937.

Statistics are collected by the report card system.

Physicians are becoming more and more alert to the gravity of this emergency and the significance of prompt diagnosis and quick action.

ABSTRACT OF DISCUSSION

DR. H. A. REIMANN, Philadelphia: The mortality rate from pneumonia of all kinds has declined steadily during the past forty years, and so has the mortality rate from many other infectious diseases as well, without the aid of specific measures. The improvement was apparently brought about by many complex factors including increased knowledge, better housing and better food. Specific serum treatment no doubt was effective in reducing the death rate in pneumococcic pneumonia more rapidly in the past ten years, but sulfonamide chemotherapy, as every one knows, has caused the greatest good. Dr. Bortz is concerned with the present mortality rate of between 10 and 15 per cent in properly treated cases of pneumococcic pneumonia. It is probable, however, that we can never improve much on this figure, which may be near an irreducible minimum, even if better drugs are eventually synthesized. There is a certain percentage of cases with serious focal complications such as endocarditis or pericarditis, with overwhelming infection, or the

causative pneumococci may become drug fast, or treatment might be delayed too long, or there may be coincident chronic disease such as diabetes, heart failure or renal failure, in which specific therapy at present seems futile. Nevertheless he is correct in urging that every effort be made to control even such cases. It has been found by long experience that the successful epidemiologic control of infectious disease is seldom accomplished by the efforts of the individual practitioner alone. For many reasons it is a matter for public health officials to contend with, as Dr. Bortz has shown. The initiation of such efforts should properly be made by qualified state or other health officials, but unfortunately such positions in many localities are not staffed with properly trained or interested personnel. It is highly commendable, but it should not have been necessary, for a group of busy practitioners to give their time to institute and organize a campaign such as the successful one described by Dr. Bortz; however, it shows what doctors can do when the need arises and they have the will to do it. A word should be added in respect to the advice broadcast in many of the antipneumonia campaigns to give one of the sulfonamide drugs as soon as the diagnosis of pneumonia is made. It must be remembered that there are many kinds of pneumonia, and for certain forms among them sulfonamide therapy is of no value. It is necessary therefore to make etiologic diagnosis in all cases as early as it is possible to do so. It is perhaps justifiable in most cases of pneumonia to administer the drugs promptly, but if it is found that the disease is not caused by an infectious agent which is amenable to chemotherapy the drug should be stopped.

DR. WALTER F. DONALDSON, Pittsburgh: I discuss this topic from the point of view of the various county and state medical societies. In Pennsylvania we have been particularly fortunate in the leadership typified in Dr. Bortz. Our state medical society takes a part in this program, which costs more in sustained effort than in money. We carried the educational program to our entire membership in every county of the state. Dr. Bortz organized his commission on our councilor district basis, twelve councilor districts with one to seven counties to a district. The commission includes practitioners and teachers who know pneumonia, at least one from each district. On them falls considerable responsibility for inspiring interest by the membership throughout the various county medical societies in their respective districts. The state medical society has played a part by paying expenses of these commission members and of county society representatives to the meetings which Chairman Bortz plans and conducts twice a year at Harrisburg. It also cooperated by distributing literature to the membership throughout the various county medical societies, not reprints but preprints. Thinking of pneumonia as a seasonal disease, Dr. Bortz gathers his copy early and we distribute preprints to county medical societies in December so that our members may have late information conveniently at hand. The preprint is not made up of long or dreary discussions of pneumonia by physicians in laboratories or alone by full time men in hospitals. The members of this commission meet the same problems in the early recognition and adequate treatment of pneumonia as does the general practitioner. In the 1942 preprint "New Facts on Pneumonia," no article contains more than a thousand words. They cover a dozen phases of pneumonia, each written by a practitioner of current experience. We not only distribute these preprints at component society meetings in December, but in January and February they appear in the *Pennsylvania Medical Journal*. Further, through the state medical society the twelve articles comprising "New Facts on Pneumonia" are multigraphed, two or three at a time, and distributed to the publications of twenty-nine county medical societies, which print the entire series. Through such cooperation and the repetition through varied channels, our membership cannot readily avoid acquaintanceship with progress in the control of pneumonia. Programs at county medical society meetings include this subject. Essential cooperation in this yearly program between our state health department and the Medical Society of the State of Pennsylvania has been magnificent.

THE NATURAL HISTORY OF RHEUMATIC CARDIAC DISEASE: A STATISTICAL STUDY

II. MANIFESTATIONS OF RHEUMATIC ACTIVITY: RECURRENCE, SEVERITY OF INFECTION AND PROGNOSIS

ALFRED E. COHN, M.D.
AND
CLAIRE LINGG
NEW YORK

That rheumatic fever or rheumatic cardiac disease is a chronic infectious disease is now generally accepted. In children especially recurrent manifestations of an active inflammatory process are commonly observed. One or more such recurrences took place in 75 per cent of the 3,129 patients studied in this investigation during an average period of thirteen years after the onset of the illness.[1] Two recurrences were experienced by 51 per cent, three by 32 per cent, four by 20 per cent and five or more by 12 per cent.

Although recurrences [2] of rheumatic activity take place at all ages at which the disease is found, it appears that the largest number occurs between the ages of 5 and 14 years. A curve representing the ages

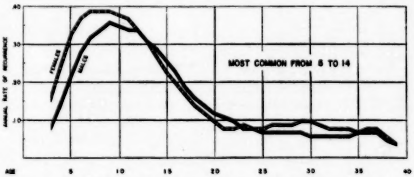


Chart 1.—Recurrences of rheumatic activity, taking place usually before the age of 16.

at which reactivations occur shows a sharp decline beginning at the age of 11 or 12. After the age of 20 it resembles a horizontal line. Before 13, recurrences are more frequent among girls than among boys (chart 1).

RECURRENCES RELATED TO AGE

It has been reported that recurrences of rheumatic activity are more commonly experienced the earlier the age at which the disease is acquired.[3] A number of studies have shown that the tendency to infection begins to diminish about the age of puberty, suggest-

This study was made in collaboration with WPA Official Project No. 65-1-97-WP 23 (N. Y. C.).
From the Hospital of the Rockefeller Institute for Medical Research and the Heart Committee of the New York Tuberculosis and Health Association, Inc.

1. Cohn, A. E., and Lingg, Claire: The Natural History of Rheumatic Cardiac Disease: I. Onset and Duration of Disease, J. A. M. A. **121**:1 (Jan. 2) 1943.

2. Among recurrences of rheumatic infection are included active carditis (presence of an active rheumatic process in the heart clearly recognizable clinically), polyarthritis, Sydenham's chorea, subcutaneous nodules and manifestations of subacute activity. The term "subacute activity" is used to designate signs and symptoms of infection such as fever, tachycardia, joint pains, elevated erythrocyte sedimentation rate, leukocytosis or epistaxis otherwise unexplained and of insufficient degree to warrant a diagnosis of polyarthritis or carditis. Muscle or joint pains alone were not included as rheumatic reactivations because it was not possible to separate nonrheumatic pains from joint pains typical of subacute rheumatic fever. The incidence of such complaints without this discrimination has nevertheless been analyzed (chart 6 and tables 1 and 2). They were likewise considered in classifying the degree of infection to be referred to later.

3. Wilson, M. G.; Lingg, Claire, and Croxford, G.: Statistical Studies Bearing on Problems in Classification of Heart Disease: Heart Disease in Children, Am. Heart J. **4**: 164, 1928.

ing that a condition of resistance then develops.[4] Some observers have presented data in support of the belief that, regardless of age, recurrences are less likely to occur five years or more after the first infection [5] because of the development of immune processes. But

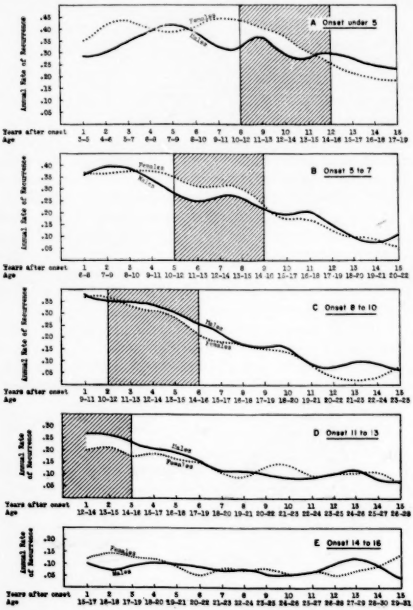


Chart 2.—Recurrences of rheumatic activity in different onset groups.

in most instances the onset is at 7 or 8 years. Five years after onset frequently coincides, therefore, with the beginning of puberty. It has been suggested that the decrease in recurrences noted at puberty may be due not to this physiologic change. The confusion, to repeat, occurs because five years after the onset of most cases, at 7 or 8 years, the age of puberty has arrived.

Further light is thrown on this point by curves showing the annual rate of recurrence in groups of patients in whom the disease began at different ages (chart 2). The shaded areas represent the years of puberty (ages 11 to 15), which, according to Stratz,[6] comprise the second phase of the preadolescent period—proceritas II.

It appears that when the onset is under age 5 the rate of recurrence does not decrease at the end of five years but remains high for eight or nine years, or until the beginning of puberty (chart 2*A*); but when the onset is between 5 and 7 the curves begin to decline earlier, after four or five years (ages 11 or 12), at the beginning of puberty, and when the onset is between 8 and 10, the fall begins two or three years later, although this too is at age 11 or 12 (chart 2*C*). When the onset is at the beginning of puberty, between 11 and 13, however, the rate of recurrence is lower in the first five years than when the onset is earlier, and the curves show a gradual decline almost from the beginning (chart 2*D*); when the disease begins after puberty, at ages 14 to 16, the rate of recurrence is considerably lower at the start and the curves resemble horizontal lines (chart 2*E*). These curves tend to support the opinion that it is puberty, and not necessarily the first five years after the initial infection, that influences the frequency of recurrent activity.

There can be little doubt that knowledge of this diminishing susceptibility to rheumatic infection at puberty is of value in judging the effect of therapeutic measures on the subsequent course of the disease and that age, therefore, is an important factor in estimating the effect of treatment.

TYPES OF INFECTION

Of the various types of infection experienced throughout life, pure forms—carditis, subacute activity, polyarthritis, muscle and joint pains or chorea—occur in

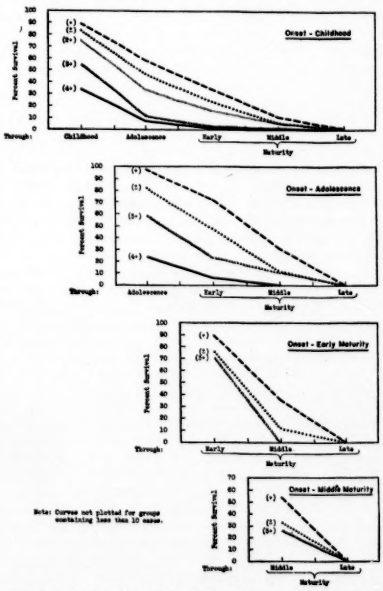


Chart 3.—Survival and severity of rheumatic infection in onset period.

a little less than one fourth of all the cases when the onset takes place in childhood (chart 6, table 1). Polyarthritis is the most common single manifestation, experienced recurrently in 15 per cent of the cases. Carditis is the most frequent but is rarely the only

4. Willius, F. A.: A Study of the Course of Rheumatic Heart Disease, Am. Heart J. **3:** 139, 1927. von Eickstedt, E.: Ueber den Einfluss der Pubertät auf die Rezidivhäufigkeit der Polyarthritis acuta, Ztschr. f. Kinderh. **54:** 64, 1934. Stroud, W. D.; Goldsmith, M. A.; Polk, D. S., and Thorp, F. Q.: Ten Years' Observation of Children with Rheumatic Heart Disease, J. A. M. A. **101:** 502 (Aug. 12) 1933. Wilson, Lingg and Croxford.[3]

5. Kaiser, A. D.: Factors That Influence Rheumatic Disease in Children, J. A. M. A. **103:** 886 (Sept. 22) 1934. Jones, T. D.: The Natural History of Rheumatic Fever and Heart Disease with Especial Reference to Etiology and Prognosis, Bulletin, Chicago Heart Association, Inc. **15:** 1-6, 1937. Leonard, Marion: Puberty and Prognosis in Rheumatic Fever, Am. Heart J. **14:** 192, 1937.

6. Stratz, C. H.: Lebensalter und Geschlechter, Stuttgart, Ferd Enke, 1926.

type of infection. It was exhibited at some time by nearly three fourths of the cases.

As the age at onset advances, pure forms become more common. Among patients first affected in adolescence, for example, polyarthritis alone occurs in 40 per cent. When the disease begins in the third decade this increases to 43 per cent but shrinks to 22 per cent when the onset is after 30. The later the disease begins the fewer are the patients who exhibit carditis and the greater becomes the number without manifest infection—more than half, for example, when the onset is after 30.

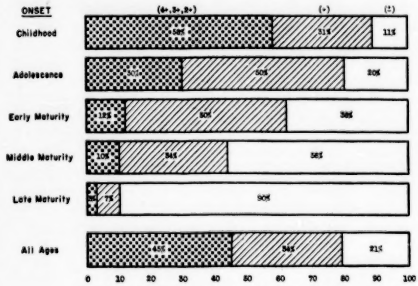


Chart 4.—Rheumatic activity throughout life.

This description of male cases suffices also for females.

AGE AND SUSCEPTIBILITY TO TYPES OF INFECTION

Investigation of susceptibility at different ages to different types of infection discloses the fact that at all ages polyarthritis is the most common manifestation, and active carditis comes next; that during adolescence carditis is almost as frequent as polyarthritis; that polyarthritis is at all ages the most outstanding single manifestation (table 2). During adolescence nearly a third and after the age of 20 at least 50 per cent exhibit no signs of infection.

CLASSIFICATION OF SEVERITY

The severity of the rheumatic infection may have a bearing on prognosis. Coombs [7] pointed out that prognosis is worse when patients show signs of systemic saturation with rheumatic infection. It has not been possible in this study to classify accounts of individual attacks according to severity; for this the records were too subjective to be reliable. The attempt has been made, however, to classify patients according to the degree or dose of rheumatic infection experienced in successive periods of life—childhood, adolescence, early, middle and late maturity.

To this end there were appraised (1) the manifestations presented—active carditis, polyarthritis, chorea, nodules, subacute activity, or muscle and joint pains [8]—and (2) their persistence—whether during a given period they were more or less continuous; whether they recurred from time to time and the frequency of their recurrence; whether there were relatively long periods during which they were absent.

As a result, the following classification is proposed:

4+ when manifestations, carditis being one, are more or less continuous or recur at least four times.

3+ when manifestations, carditis being one, recur less than four times or when, with one attack of carditis, (*a*) muscle or joint pains persist throughout the period or (*b*) every type of manifestation is absent for not more than four years.

2+ when manifestations including polyarthritis, chorea and subacute activity persist or recur at least five times, or when, after one attack of carditis, every type of manifestation is absent for a period of five or more years.

+ when manifestations including polyarthritis, chorea or subacute activity recur not more than four times, even though muscle and joint pains may be continuously present.

± when there are no manifestations or only persistent or recurrent muscle or joint pains.

SEVERITY OF INFECTION RELATED TO AGE AT ONSET

Of those patients for whom the data were complete (2,942, or about 95 per cent), infection was classified as severe (4+, 3+) or as moderately severe (2+) in 45 per cent,[9] as mild (+) in 34 per cent and as questionable or absent (±) in 21 per cent (chart 4). The proportion of severe cases decreases as the age at onset increases. The proportions with severe or moderately severe as against mild or questionable activity were, for example, 58 per cent and 42 per cent respectively, when the disease began in childhood; 30 per cent and 70 per cent when it began during adolescence; 12 per cent and 88 per cent when it began in early maturity; 10 per cent and 90 per cent when it began in middle maturity, and 3 and 97 per cent when it began after age 45.

In short, when the disease is acquired in childhood, of every 10 patients, 6 will exhibit severe infection and 3 mild and 1 will not experience more than muscle or joint pains in childhood. When the onset is in adolescence, out of every 10 cases infection will be severe in 3, mild in 5 and absent in 2. Of every 10 patients who acquire the disease in the twenties or between ages 30 and 45, only 1 in each group will suffer severe infection, 5 and 3, respectively, will suffer mildly and 4 and 6 will not exhibit any signs of activity. When afflicted after the age of 45, 9 out of 10 will show no signs of activity.

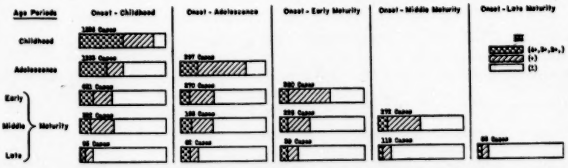


Chart 5.—Severity of rheumatic activity in different age periods.

AGE SUSCEPTIBILITY TO SEVERITY OF INFECTION

It is in the early years of life that the infectious process is most active (chart 5). Severe infection is most common in childhood, occurring in 50 per cent. With advancing age the number of severe cases become

7. Coombs, C. F.: The Course of Rheumatic Heart Disease, M. J. & Rec. **121**: 623 (May 20) 1925.

8. Muscle and joint pains were not included as manifestations of rheumatic fever when they occurred after the age of 15.

9. Broken down, the classifications are 4+ in 21 per cent, 3+ in 17 per cent and 2+ in 7 per cent.

less frequent. During adolescence and in early maturity it is greatest among persons who have survived the disease since childhood. After the age of 30 the number of severe cases is relatively small, regardless of when the disease was acquired.

Severity of Infection and Prognosis.—When the infection was classified as severe in childhood, only 34 per cent (4+) and 56 per cent (3+) of patients survived through early maturity (the twenties) and only 11 per cent through middle maturity (30 to 45). This poor expectancy does not depend, it seems, on more severe infection later, for only 15 per cent of the patients who survived adolescence (chart 5) presented severe infection during the third decade, and of those who survived beyond this decade not more than about one tenth presented severe infection later.

TABLE 1.—*Manifestations of Infection Experienced Throughout Life*

	Manifestations, Percentage										
	Carditis		Subacute Activity		Polyarthritis		Muscle and Joint Pains		Chorea		
Onset Period	Total Incidence	Alone	Total Incidence	Alone	Total Incidence	Alone	Total Incidence	Alone	Total Incidence	Alone	None
Childhood											
(1-14) ♂	69.3	4.4	4.0	0.4	71.0	14.6	16.6	2.6	20.3	2.3	3.4
(1-12) ♀	67.0	3.5	3.4	0.4	63.6	14.4	23.2	3.6	29.9	4.0	1.9
Adolescence											
(15-20) ♂	36.8	9.8	6.5	1.6	72.1	40.2	2.4	1.6	1.6	0.8	13.1
(13-18) ♀	43.3	8.0	4.7	0.7	69.3	36.0	12.6	6.0	8.0	2.7	4.7
Early maturity											
(21-29) ♂	22.8	8.7	5.5	2.2	60.9	43.5	....	...	...	...	28.3
(19-29) ♀	21.4	5.2	6.3	1.7	61.8	41.0	....	...	0.6	0.6	30.6
Middle and late maturity											
30 and over ♂	18.4	7.6	4.9	3.8	34.1	22.2	....	...	...	...	54.6
♀	10.5	7.2	3.9	2.2	30.5	25.5	....	...	...	...	60.0

TABLE 2.—*Manifestations of Infection Experienced in Different Age Periods*

	Manifestations, Percentage										
	Carditis		Subacute Activity		Polyarthritis		Muscle and Joint Pains		Chorea		
Age Periods	Total Incidence	Alone	Total Incidence	Alone	Total Incidence	Alone	Total Incidence	Alone	Total Incidence	Alone	None
Childhood											
(♂ 1-14) (♀ 1-12)	45.3	3.7	3.1	0.4	60.7	24.2	20.5	7.6	24.3	7.2	6.1
Adolescence											
(♂ 15-20) (♀ 13-18)	32.0	10.8	3.4	1.2	36.8	22.3	16.5	6.2	5.6	2.4	31.5
Early maturity											
(♂ 21-29) (♀ 19-29)	18.0	8.2	2.9	1.7	37.0	28.0	....	...	1.1	0.7	52.1
Middle and late maturity											
30 +	13.5	8.5	3.9	3.0	27.9	22.0	....	...	...	0.1	60.5

TABLE 3.—*Proportion of Cases with Severe and Mild Activity in Onset Period, Related to Type of Onset*

	Period of Onset											
	Childhood			Adolescence			Early Maturity			Middle Maturity			Late Maturity		
		Activity			Activity			Activity			Activity			Activity	
Type of Onset	Number of Cases	Severe, Per Cent	Mild, Per Cent	Number of Cases	Severe, Per Cent	Mild, Per Cent	Number of Cases	Severe, Per Cent	Mild, Per Cent	Number of Cases	Severe, Per Cent	Mild, Per Cent	Number of Cases	Severe, Per Cent	Mild, Per Cent
Carditis.....	292	78	22	22	55	45	6*	..	..	7*	..	..	0	..	..
Polyarthritis	612	44	56	159	14	86	121	7	93	90	9	91	6*	..	..
Chorea.....	239	41	59	8	12	88	1*	..	..	0	..	..	0	..	..
Muscle and joint pains	201	42	58	29	17	83	0	..	..	0	..	..	0	..	..
Murmur.....	280	41	59	57	10	90	113	3	97	163	6	94	77	..	100

* Rates are not computed for numbers under 10.

survived childhood, whereas when the classification was moderately severe (2+) or mild (+), more than 70 per cent of them did survive (chart 3). Of the former patients (4+ and 3+) only 7 per cent and 12 per cent survived adolescence and only very few, 1 per cent and 2 per cent, survived the third decade. Of the latter patients (2+ or +), on the other hand, between 34 per cent and 59 per cent survived adolescence.

It is of particular interest that when the infection was mild (+) in childhood only about a third survived childhood, whereas when the classification was moderately severe (2+) or mild (+), more than 70 per cent of them did survive (chart 3). Of the former patients (4+ and 3+) only 7 per cent and 12 per cent survived adolescence and only very few, 1 per cent and 2 per cent, survived the third decade. Of the latter patients (2+ or +), on the other hand, between 34 per cent and 59 per cent survived adolescence.

It is of particular interest that when the infection was mild (+) in childhood only about a third survived childhood, whereas when the classification was moderately severe (2+) or mild (+), more than 70 per cent of them did survive (chart 3). Of the former patients (4+ and 3+) only 7 per cent and 12 per cent survived adolescence and only very few, 1 per cent and 2 per cent, survived the third decade. Of the latter patients (2+ or +), on the other hand, between 34 per cent and 59 per cent survived adolescence.

The curves of survival were furthermore consistently lower when activity was classified as ± early in the disease than when it was classified as +. Here again subsequent activity does not explain this less favorable prognosis, since few patients with onsets classified as ± exhibited manifestations later in life (charts 4 and 5). The explanation may be that among these patients continuous or recurrent carditis may, nevertheless, have been present though not recognized clinically or that with time myocardial insufficiency may have developed with or without obvious infection.

TYPE OF ONSET RELATED TO SUBSEQUENT INFECTION

Coombs [7] believed that the kind of onset influenced the duration of life: When chorea came first, only 1 patient in 30 died of heart disease in the first decade, but with carditis more than 1 in 4, with polyarthritis 1 in 5 and with subcutaneous nodules 1 in 2.

To make predictions beyond one decade on the basis of onset alone is, however, impossible, since reactivations after the age of 10 are common and since the frequency as well as the type of recurrence plays an important part. Obviously, with chorea at the age of 6 or 7 years, prognosis may not be better than with carditis if the choreic child presents active carditis later on. It seemed better, therefore, to relate the type of onset to the degree of infection experienced in subsequent years. After the first two decades, as has already been shown,[1] carditis and chorea are rare, but when carditis came first in children activity was severe during childhood in 78 per cent and mild in 22 per cent (table 3). With other onsets, the degree of activity fell; it was severe in about 40 per cent and mild in about 60 per cent.

In adolescence, when the first manifestation was carditis, activity during adolescence was severe in only 55 per cent and mild in 45 per cent. With other onsets it was mild or absent in at least 80 per cent. After the age of 20, activity remained mild or absent in more than 90 per cent, whatever the onset.

At all ages, polyarthritis is the most frequent single manifestation. It is the only manifestation exhibited by 40 per cent of patients between the ages of 15 and 30. After 30 years of age there is no manifest infection in about half of all patients.

The earlier the age at onset, the greater is the chance that infection will be "severe" during the next few years.

When the infection is "severe" in the early years of the disease expectancy is shorter than when the infection is "mild." Of children with "severe" infection, less than one-half survive childhood, about one-tenth survive adolescence and less than 2 per cent survive the third decade. Even when the infection is "mild" in childhood, only a third survive to the age of 30, and only one tenth to the age of 45.

Prognosis is less favorable with "mild" signs of infection in childhood than in older persons with the same degree of infection.

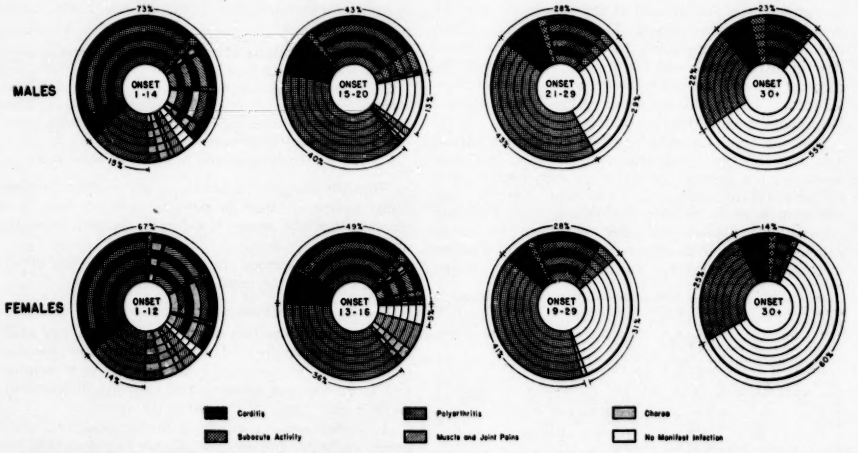


Chart 6.—Types of infection experienced throughout life. Onset in childhood: Carditis the most frequent but rarely the only type of infection. Onset in adolescence and early maturity: Polyarthritis the most common manifestation. Onset after 30: No manifest infection at any time in most cases.

When the first manifestation of rheumatic fever is carditis, the chances are 3 to 1 that infection during childhood will be "severe." When the onset is characterized by joint symptoms or chorea or by a cardiac murmur alone, the chances are 3 to 2 that infection will be "mild." In adult life infection is "mild" or absent in 9 out of 10 cases, whatever the onset.

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SUMMARY

Recurrent manifestations of activity have been analyzed in 3,129 cases of rheumatic cardiac disease.

Recurrent manifestations are most common during childhood.

They are most prevalent before puberty rather than during the first five years after onset.

When the disease begins in childhood, carditis is the most frequent but rarely the only type of infection.

Light Bombs and Small Skin Injuries.—The light bombs which are used produce thousands of small flakes of aluminum. These apparently explode horizontally and inflict innumerable very small skin injuries of the legs and lower abdomen. Serious damage, however, is produced to the inner structures of the limbs and frequently there are fractures from the great speed and spin with which the fragments enter.—Mercer, Walter: The Immediate Treatment of Air Raid Injuries, Including the Surgery of the Upper Limb, from War and the Doctor, edited by J. M. Mackintosh, M.D., Baltimore, William Wood & Co., 1942.

RENAL BLOOD FLOW AND GLOMERULAR FILTRATION

AS INFLUENCED BY ENVIRONMENTAL TEMPERATURE CHANGES

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Observations on the renal circulation were carried out as early as 1883, when Cohnheim and Roy [1] applied the oncometer to this problem. Since then Landergren and Tigerstedt,[1] using the Ludwig stromuhr, and others,[2] using modifications of the stromuhr method, have extended the observations on direct measurements of renal blood flow. Van Slyke and his co-workers [3] contributed an indirect method based on the renal urea extraction ratio and arrived at the conclusion that the urea clearance varied directly as the blood flow. These methods are not applicable to a study of renal blood flow in man. Smith and his associates [4] developed the diodrast method, an indirect one, applicable to human subjects. Using this method, White [5] and others [6] have contributed additional studies.

Barbour [7] and Lazinski [8] studied circulatory adjustments to hot environmental temperatures, but their work did not include the effect of such temperatures on the renal circulation. In an attempt to evaluate the effects of heat on the kidney, Goldring [9] and Farr and Abernethy [10] applied the urea clearance to febrile patients suffering from infectious processes and reported increases in clearances during the febrile stages. Patients over 40 years of age with pneumonia did not show increases in clearances.[10] Farr and Moen [11] induced hyperpyrexia in rheumatic patients and found clearances 75 per cent of normal when fever was at its maximum. Grant and Medes [12] found no correlation between body temperatures and creatinine clearances in human subjects with fever due to infection. They did, however, find a general parallelism between body temperature and creatine clearances in dogs made hyperthermic by diathermy. Page [13] concluded that there was no significant alteration in renal function in patients with Bright's disease treated with diathermy.

Based on the principles developed by Lefevre [14] and Burton [15] a new method was developed for the measurement of peripheral blood flow. Extensive studies of changes induced in this flow by environmental temperatures have been made by Hardy and Du Bois [16] and Winslow, Herrington and Gagge.[17] One of us (R. W. K.), working with Hick, Montgomery, Glickman and Wall,[18] has shown further that in hot environmental temperatures the body adjusts itself in the following manner:

1. There is no increase in cardiac output until heat is stored and the body temperature is elevated.
2. The blood volume is usually not increased, but in some subjects an increase of 10 to 15 per cent was noted. When dehydration occurs there may be a reduction in volume.
3. The vital capacity is increased.
4. There is a fourfold increase in peripheral blood flow.

Since the increase in blood volume was not proportional to the increase in peripheral blood flow, it is obvious that the extra blood was shunted from the interior.

It therefore seemed important to study the effects of this shunt on the renal circulation.

EXPERIMENTAL PROCEDURE

An air conditioned room without windows was available for these studies. The temperature and humidity could be closely regulated. Air currents were minimal (15 to 25 feet per minute) and under equilibrium the air and wall temperatures were the same.

A 10 per cent "solution of purified inulin" [19] prepared in 50 cc. ampules for intravenous injection was used in our earlier experiments. In later ones we used inulin (Pfanstiehl C. P. and Eastman C. P.) which was prepared in a 10 per cent solution in isotonic solution of sodium chloride and passed through Seitz

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19. Prepared by the U. S. Standard Products Company, Woodworth, Wis.

filters.[20] "EK" Seitz filter pads gave us uniformly pyrogen free solutions. The diodrast[21] used was a 35 per cent sterile solution obtained in 20 cc. ampules.

ANALYTIC TECHNIC

Quantitative analysis of inulin in the blood serum and urine was carried out by our modification of the method described by Alving, Rubin and Miller[22] and Alving and Miller.[23] This modification allowed phototelometric readings (Cenco-Sheard-Sanford photelometer, Cenco filter No. 4) on filtrates containing 2.5 to 100 mg. of inulin per hundred cubic centimeters of serum (or urine). This was made possible by using less filtrate, so that our final mixture in the tube for development of color contained 13 per cent less water and a higher percentage of hydrochloric acid and diphenylamine.

Diodrast analyses were determined after the method of White and Rolf,[24] using cadmium sulfate instead of trichloroacetic acid in preparing the protein free filtrate.

Inulin and diodrast clearances were then determined, the periods varying from ten to twenty minutes each. The inulin blood serum level was usually over 10 mg. per hundred cubic centimeters. The level of diodrast was kept under 5 mg. per hundred cubic centimeters for renal plasma flow and over 10 mg. per hundred cubic centimeters for diodrast studies of the maximal rate of tubular excretion. All the patients were catheterized and the bladder emptied by successive washings with isotonic solution of sodium chloride. The residual bladder fluids were removed by insufflation through the catheter.

In our earlier tests we administered diodrast subcutaneously, a 35 per cent solution being diluted 1 : 3 with isotonic solution of sodium chloride after the method of White and Findley.[26] This gave a satisfactory level for determination of renal plasma flow. Inulin was given intravenously in a single injection of 50 cc. of a 10 per cent solution after the method of Alving and Miller.[23]

TABLE 1.—*Data on Subjects Used in These Studies*

Name	Age	Sex	Diagnosis	Ocular Fundi K. W.*	Blood Pressure, Mm. Hg: On Admission	Blood Pressure, Mm. Hg: At Rest	Rise in Blood Pressure During Cold Pressor Test, Mm. Hg	Drop in Blood Pressure During Sodium Amytal, Mm. Hg	Drop in Blood Pressure During Sodium Nitrite, Mm. Hg	Maximum Urinary Specific Gravity	Blood Nonprotein Nitrogen, Mg. per 100 Cc.	Fifteen Minute Phenolsulfonphthalein Excretion, per Cent	Urea Clearance, Cc.	Urogram	Urine
S. R.	30	♂	Essential hypertension	1	158/ 98	132/ 84	34/20	20/10	12/ 0	1.029	22.7	50%†	64.8 M‡	Normal	Normal
D. W.	20	♂	Essential hypertension	1	148/ 70	134/ 70	8/ 8	44/ 0	.....	1.037	36.3	30%	88.0 M	Normal	Normal
J. W.	24	♂	Essential hypertension	1	158/ 88	158/ 88	16/36	42/10	18/10	1.034	34.7	10%	37.0 S	Normal	Normal
A. S.	23	♀	Essential hypertension	1	166/110	130/ 80	20/22	26/20	16/ 6	1.030	30.0	30%	43.0 M	Normal	Normal
L. F.	17	♂	Essential hypertension	1	210/130	188/120	24/20	42/10	.....	1.025	36.0	40%	58.0 M	Defective right pelvis	Albumin and casts
H. W.	27	♀	Essential hypertension	1	230/140	184/128	20/ 7	88/38	84/36	1.030	33.0	45%	60.6 M	Normal	Normal
R. L.	16	♀	Essential hypertension	3	160/120	148/114	.....	20/12§	.....	1.009	25.0	15%	44.0 M	Small right kidney	Albumin and casts
R. R.	22	♀	Glomerulonephritis	1	144/120	130/ 82	0/16	14/ 0	22/12	.....	42.0	15%	22.3 M	Poor visual.	Albumin
C. V.	30	♂	Glomerulonephritis	4	196/124	190/124	44/16	48/ 8	.....	.....	44.0	....	21.0 S	Poor visual.	Albumin and casts
H. M.	23	♀	Glomerulonephritis	2	184/114	.....	26/52	32/16	34/20	.....	54.7	5%	16.0 M	No visual.	Albumin
L. S.	35	♂	Glomerulonephritis	1	110/ 70	.....	.....	.....	.....	.....	128.6	....	5.0 S	.....	Normal
L. C.	14	♂	Normal	..	122/ 80	.....	.....	.....	.....	.....	29.7	....	.....	.....	Normal
L. W.	20	♂	Normal	..	110/ 70	.....	.....	.....	.....	.....	....	....	.....	.....	Normal
R. E.	37	♂	Normal	..	108/ 80	.....	.....	.....	.....	.....	35.0	....	.....	.....	Normal

* K. W. indicates Keith Wagener classification based on study of photographs of the ocular fundi.
† Forty-five minutes after dye was given to this particular patient.
‡ M, maximal clearance; S, standard clearance.
§ Given pentothal sodium intravenously instead of sodium amytal.
Cardiac size was considered normal in all cases as estimated by examination of the 2 meter roentgenograms of the chest.

PROCEDURE

The subject was placed in the air conditioned room before midnight of the day preceding the test and given water ad libitum until midnight. He was required to sleep in the nude at a temperature of 83.5 F. (dry bulb) and 59 F. (wet bulb), giving a relative humidity of 21 per cent, which is within the comfort zone of Houghten and Yaglou.[25] At 6 a. m. the patient was given 600 cc. of water at body temperature. Studies of oxygen consumption and skin and rectal temperatures were begun at 7 a. m. Immediately thereafter the blood required by our studies was drawn.

Subsequently a continuous intravenous drip of a suitable mixture of inulin, diodrast and isotonic solution of sodium chloride as described in the method of Goldring, Chasis, Ranges and Smith[27] was used. The amount of diodrast varied with the type of study.

At the termination of the clearances under comfortable conditions, the temperature of the room was changed to hot dry (dry bulb 99.5 F., wet bulb 68.5 F., relative humidity 19 per cent) or hot wet (dry bulb 99.5 F., wet bulb 84.4 F., relative humidity 55 per cent). Under the hot condition all the heat must be lost from the surface by evaporation, since the temperature of the surrounding air is equal to or above that of the body temperature. All the heat arising within the interior of the body must be transported by the blood as it flows through the peripheral surfaces. This means that

20. Co Tui; McCloskey, K. L.; Schift, Milton, and Yates, A. L.: A New Method of Preparing Infusion Fluids, J. A. M. A. **109**: 250 (July 24) 1937.
21. Furnished by courtesy of the Winthrop Chemical Company, Inc.
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the peripheral blood flow must be maximal to prevent a storage of heat and a rise in rectal temperature.

After a period adequate for the temperature change to occur and for equilibrium to be reached, clearances were repeated.

TYPES OF CASES STUDIED

Cases studied included normal persons, patients with early and established essential hypertension and patients with chronic glomerulonephritis both with and without nitrogen retention. There was 1 patient with uremia and normal tension and 1 patient with a well established hypertension who had suffered trauma to the right kidney.

The diagnosis of essential hypertension was made on patients with a high systolic and diastolic blood pressure who had had no known inflammatory kidney disease or urinary tract obstruction. Chronic glomerulonephritis was diagnosed on the basis of history of renal inflammatory disease and a study of urine sediment.

Among other clinical and laboratory studies carried out on our patients (table 1) were kidney function tests including urea clearances, phenolsulfonphthalein excretion tests (intravenous method) and urine concentration tests according to the method of Lashmet and Newburgh,[28] hourly blood pressure records for an entire day, blood pressure responses to sodium nitrite and sodium amytal, the cold pressor tests of Hines and Brown,[29] intravenous urograms, permanent records of the ocular fundi,[30] electrocardiograms and a 2 meter roentgenogram of the chest for heart size. Changes in the ocular fundi were graded according to the classification of Keith and Wagener.[31]

TABLE 2.—*Environmental Temperature Conditions*

	Dry Bulb ° F.	Wet Bulb ° F.	Relative Humidity
Comfortable	83.5	59.0	21%
Hot dry	99.5	68.5	19%
Hot wet	90.5	84.4	55%

Air currents—15-25 feet per minute

Under equilibrium—Air and wall temperature the same

TABLE 3.—*Peripheral Blood Flow*

Subject	Dry Bulb ° F.	Wet Bulb ° F.	Heat Production, Cal./M²/Hr.	Heat Disposal Cal./M²/Hr. Transferred by: Storage	Conduction	Convection	Conductivity, Cal./M²/Hr.	Blood Flow, Liters/Hr.
L. F. (essential hypertension)	83.5	58.6	41.7	0	23.9	17.8	15.1	6.4
	99.7	64.4	45.6	7.9	9.0	28.7	36.3	27.6
R. E. (normal)	83.6	59.7	34.4	0	22.7	11.7	13.1	4.4
	99.1	65.0	34.5	9.2	8.6	16.7	25.3	16.7
H. M. (glomerulonephritis)	82.7	59.5	33.0	0	24.6	8.4	11.6	2.9
	99.8	68.0	35.7	8.3	10.6	16.8	22.3	13.7

RESULTS

Extent of Peripheral Blood Flow.—Studies were made of the peripheral blood flow of a normal subject and of subjects with essential hypertension and chronic glomerulonephritis, using the method described by Keeton, Hick, Glickman and Montgomery.[32] The environmental conditions used in our studies are summarized in table 2.

It will be noted in table 3 that the blood flow was increased in each instance approximately four times. This indicates that patients with normal and damaged kidneys have similar quantitative reactions and that kidney damage has not affected the transfer of blood from the interior to the surface.

Inulin Clearances.—Inulin clearances under comfortable conditions in 3 normal subjects (R. E., L. W. in table 4 and L. C. in table 6) averaged 110 cc. to 1.73 square meters of body surface. This value is lower than the mean clearance of 131 cc. as reported by study of a large series of cases by Smith.[4] However, this falls within the variations of his mean and is also near the figure of 116.89 cc. by Foa and his co-workers.[33] Twenty patients of all types were found to have the same inulin clearances in comfortable and in hot conditions. This would indicate that in the hot conditions there was no increase in the number of functioning glomeruli, even in the severely damaged kidneys.

Plasma Flow.—The renal plasma flows (diodrast clearance) in normal and hypertensive subjects with normal inulin clearances shown in table 4 are between the lower figures of 497 and 518 cc. reported by White, Findley and Edwards [34] and the Chesleys [35] respectively and the higher figure of 688 cc. by Smith.[4] When these patients were placed in hot conditions for two or three hours the changes in the renal plasma flow are not significant. The variations are in both directions and are not great.

TABLE 4.—*Renal Plasma Flow in Patients with Normal Inulin Clearances*

Subject	Diagnosis	Clearances, Cc. Inulin: Comfortable	Inulin: Hot	Diodrast: Comfortable	Diodrast: Hot	Variations	Hours Exposed
R. E.	Normal	91	85	623	588	−35	3
L. W.	Normal	121	161	542	552	+10	2
S. R.	Essential hypertension (1)	107	101	640	566	−74	2
L. F.	Essential hypertension (1)	117	120	559	590	+31	2
R. L.	Essential hypertension (3)	111	99	705	763	+58	2

Three patients with diminished inulin clearances (H. W., A. S. and C. V. in table 5) showed a decrease in plasma flow which exceeded the ranges of experimental error when they were subjected to hot conditions. It is possible that the reduction in plasma flow may be associated with the somewhat longer exposure (four hours) to hot conditions than was practiced in the subjects with normal inulin clearances. It should be noted that in patients with sufficient kidney damage to cause definite reduction in inulin clearances there is no evidence of an increased blood flow under hot conditions.

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30. Fundus photographs were taken by Dr. R. O. Riser, Department of Ophthalmology, University of Illinois College of Medicine.

31. Keith, N. M.; Wagener, H. P., and Barker, N. W.: Some Different Types of Essential Hypertension, Their Course and Prognosis, Am. J. M. Sc. **197:** 332, 1939.

32. Keeton, R. W.; Hick, F. K.; Glickman, Nathaniel, and Montgomery, M. M.: The Influence of Physiological Research on Comfort Requirements, J. Am. Soc. Heating & Ventil. Engineers, Section on Heating, Piping and Air Conditioning, January 1941.

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35. Chesley, Leon C., and Chesley, Elizabeth R.: The Diodrast Clearance and Renal Blood Flow in Normal Pregnant and Nonpregnant Women, Am. J. Physiol. **127:** 731, 1939.

Maximal Rate of Tubular Excretion of Diodrast.—Of six studies (table 6) four were unchanged by the hot environmental temperature but two showed an increase. These increases occurred in a normal subject and one with mild hypertension. This finding would be of considerable importance if it could be regularly reproduced. Further studies are required on this point.

Tubular Resorption.—A study of the oral fluid intake and volume of urine passed (table 7) indicates a significant decrease in the percentage of glomerular filtrate absorbed in these subjects with decreased inulin clearances and is another method of illustrating the decreased power of conservation of fluids in patients with "damaged" kidneys.

COMMENT

The magnitude of the transfer of blood from the interior to the surface under hot conditions as shown in table 3, subject L. F., amounts to 354 cc. per square meter per minute, or 611 cc. of blood (plasma 342 cc.) to 1.73 square meters of surface. It is realized that the interior vascular beds from which blood could be withdrawn are the lungs, viscera (liver, spleen) and muscles. Hence it is not probable that the kidneys

TABLE 5.—*Renal Plasma Flow in Patients with Diminished Inulin Clearances*

		Clearances, Cc.					
		Inulin		Diodrast			
Subject	Diagnosis	Comfortable	Hot	Comfortable	Hot	Variations	Hours Exposed
H. W.	Essential hypertension (1)	69	71	580	395	—185	4
A. S.	Essential hypertension (1)	69	86	502	409	— 93	4
C. V.	Glomerulonephritis	19	19	176	102	— 74	4
H. M.	Glomerulonephritis	16	14	129	79	— 50	2
H. M.*	Glomerulonephritis	14	11	76	92	+ 16	2
R. R.	Glomerulonephritis	22	24	119	124	+ 5	4

* Hot wet.

would be called on to yield this entire 342 cc. of plasma. If this quantity of plasma should be shunted from the kidneys it is obvious that their function would be severely impaired. It has already been shown [36] that the vital capacity of the lungs is increased in hot conditions, and presumably this is due to a reduction in quantity of blood in this organ. The liver and muscles are capable of yielding appreciable quantities of blood.

The methods used for the measurement of plasma flow through the kidney have a probable accuracy of 10 to 15 per cent (50 to 75 cc.). Hence the kidney might yield 75 cc. of the 342 cc. of plasma without our detecting it. In none of the experiments on kidneys with well maintained inulin clearances was there evidence of shunting of blood. In 3 of the patients with severely damaged kidneys there was slight detectable reduction in plasma flow which could have been shunted to the periphery. The whole experiment would justify the currently held view that the blood flow through the kidney is rather jealously guarded and not influenced to any great extent by other circulatory adjustments. They speak again for the autonomy of the control of renal circulation.

36. Hick, F. K.; Keeton, R. W., and Glickman, Nathaniel: Physiologic Response of Man to Environmental Temperatures, Tr. Am. Soc. Heating & Ventil. Engineers **44**: 145, 1938.

In previously reported experiments by Smith, it was noted that there was an increase in renal blood flow when pyrogenic substances were used even though the temperature was not actually elevated. The maximum rise in temperature under hot conditions in our cases amounted to 1.8 degrees F. Our data would indicate that slight rises in rectal temperature probably do not cause an increase in renal blood flow.

TABLE 6.—*Effects of Heat on Maximal Rate of Tubular Excretion of Diodrast*

		Inulin Clearance		Diodrast, Maximal Rate of Tubular Excretion		
Subject	Diagnosis	Comfortable	Hot	Comfortable	Hot	Hours Exposed
L. C.	Normal	103	96	47	70	4.0
J. W.	Essential hypertension (1)	108	110	44	59	4.0
D. W.	Essential hypertension (1)	101	87	47	44	4.0
A. S.	Essential hypertension (1)	107	95	30	21	4.0
C. V.	Glomerulonephritis	22	20	6	6	4.5
L. S.	Glomerulonephritis	9	6	11	7	2.0

These experiments have certain therapeutic implications. The applications of warm packs and heat in various forms are of no therapeutic value in promoting an increase in blood flow through the kidneys. In the previous discussion it was shown that the theoretical considerations would lead one to expect a reduction rather than an increase in the blood flow. In the severely damaged kidneys where therapeutic help is most desirable it is noted that the blood flow decreases rather than increases. In only two experiments (diodrast maximal rate of tubular excretion L. C. and J. W.) was there an increase in tubular mass. This subject deserves further study.

CONCLUSIONS

When patients were studied successively in comfortable and hot environmental conditions, the following changes were noted:

1. The increases in the peripheral blood flow in patients with hypertension and glomerulonephritis were the same as in normal subjects.

2. The inulin clearances in all experimental subjects remained unchanged.

TABLE 7.—*Tubular Resorption*

Subject	Intake	Glomerular Filtrate, Cc.	Filtrate, Absorbed, per Cent
L. W.	1,100	122	90.3
S. R.	1,100	107	98.6
H. W.	1,600	69	98.4
R. L.	600	111	98.0
L. F.	600	117	97.7
R. E.	600	91	96.6
J. W.	1,600	108	95.2
D. W.	1,600	101	91.8
R. R.	1,600	22	83.5
H. M.	600	16	78.8
H. M.*	1,100	13	73.0
C. V.	1,600	22	68.0
C. V.	1,600	19	76.6
L. S.	1,100	7	74.0

* Hot wet.

3. The renal plasma flows in patients with well maintained inulin clearances show no change.

4. The renal plasma flows in patients with decreased inulin clearances show a slight but significant decrease.

5. The diodrast maximal rate of tubular excretion was found to increase in 2 of 6 cases studied.

Subjects with lowered inulin clearances are less able to conserve water than normal subjects, as indicated by a decreased percentage of the glomerular filtrate resorbed.

REPORT OF CASES

CASE 1.—*Normal control.* R. E., a white man aged 37, complained of aching in his legs, weakness and palpitation for more than a year. The patient appeared to be in good health. Physical examination was essentially negative. The blood pressure was 108 mm. of mercury systolic and 80 mm. of mercury diastolic. Blood nonprotein nitrogen, urea nitrogen and uric acid were 35 mg., 10.1 mg. and 3.3 mg. per hundred cubic centimeters respectively. Urea clearance was 86 cc. (maximal clearance). The basal metabolic rate was minus 14 per cent. Urinalysis was negative.

CASE 2.—*Normal control.* L. W., a white youth aged 20, was studied on the fourteenth day following a herniorrhaphy. The blood pressure was 110/70. Urinalysis was negative.

CASE 3.—*Normal control.* L. C., a white boy aged 14 years, was admitted to the hospital because of a Taenia saginata infection. He had scarlet fever as a child. He appeared in good health. The blood pressure was 122/80. Blood counts were normal. The urine contained an occasional pus cell. The blood nonprotein nitrogen was 29.7 mg. per hundred cubic centimeters. Renal function tests followed evacuation of the entire worm by one week. The diagnosis was Taenia saginata infection.

CASE 4.—*Essential hypertension.* S. R., a white man aged 21, complained of palpitation and nervousness "most of his life." A hypertension had been noted three years previously on a routine examination, and recently he had been rejected from army service because of this finding. The patient appeared in good health. His blood pressure was 158/98 on admission to the hospital. Ocular fundus examination revealed grade 1 hypertensive retinopathy. Urinalysis was negative. Blood nonprotein nitrogen and urea nitrogen were 32.7 mg. and 13.5 mg. per hundred cubic centimeters respectively. Urea clearance was 64.8 cc. (maximal clearance). Maximum urinary specific gravity was 1.029. The phenolsulfonphthalein excretion was 50 per cent in forty-five minutes. Hourly blood pressure readings for a twelve hour period varied from a low recording of 130/90 to a high one of 152/96. Sodium amytal caused a fall in blood pressure from 134/84 to 122/82. The cold stimulus test showed an elevation of 34 mm. of mercury systolic and 20 mm. diastolic. Cardiac size was normal. There was a low diphasic T_3 noted in the electrocardiogram.

CASE 5.—*Essential hypertension.* D. W., a white youth aged 20, complained of some shortness of breath, dizziness, weakness and nervousness for one and one-half years. He had been found to have a hypertension by his family physician to the extent of 190 mm. of mercury systolic. The patient appeared in good health. His blood pressure on admission was 148/70. Ocular fundus examination revealed a grade 1 hypertensive retinopathy. Urinalysis was negative. Blood nonprotein nitrogen was 36.7 mg. per hundred cubic centimeters. The urea clearance was 88 cc. (maximal clearance). The urogram was normal. Phenolsulfonphthalein excretion was 30 per cent in fifteen minutes. The cold stimulus test produced a rise in blood pressure from 144/84 to 152/92. Hourly blood pressures on a twelve hour bed rest regimen showed a range in readings from 134/70 to 158/80. Sodium amytal caused a fall in pressure from 160/66 to 116/70. The heart was normal in size and the electrocardiogram showed some right ventricular preponderance. Maximum urinary specific gravity was 1.038.

CASE 6.—*Essential hypertension.* R. L., a Mexican girl aged 16 years, complained of headaches, vomiting and diplopia for one week before admission. The past history included tuberculosis of the spine. Examination revealed findings consistent with a diagnosis of right internal carotid aneurysm. The blood pressure was 146/104. The urine contained occasional granular casts. The ocular fundi revealed grade 3 hypertensive retinopathy. Intravenous urogram showed a small but otherwise normal left kidney. Maximum urinary specific gravity was 1.009. An intravenous injection of pentothal sodium caused a drop in blood pressure from 138/98 to 118/88. The urea clearance was 43.9 cc. per minute (maximal clearance). The blood nonprotein nitrogen was 25 mg. per hundred cubic centimeters. The phenolsulfonphthalein excretion was 15 per cent in fifteen minutes. The cardiac size was normal. The electrocardiogram showed ST_1 and ST_2 elevated and T_3 inverted.

CASE 7.—*Essential hypertension.* L. F., a white youth aged 17 years, was referred to the dispensary because of a blood pressure found elevated to 210/130 on some routine physical examination. A study in the genitourinary clinic using intravenous and retrograde urography revealed a deformity of the right renal pelvis. There was a history of an injury to his right side at the age of 9 following which the patient had had gross hematuria. Examination revealed a blood pressure of 192/120. On admission to the hospital his urine contained 4 plus albumin (heat-acetic acid test), occasional casts, pus and red cells. However, this test was not long after he had had a cystoscopic examination and, a few weeks later, his urine contained only 1 plus albumin and an occasional cast. The blood nonprotein nitrogen was 36 mg. per hundred cubic centimeters. The urea clearance was 58 cc. (maximal clearance). The maximum urinary specific gravity was 1.025. The ocular fundi showed a grade 1 hypertensive retinopathy. Hourly blood pressures on a twelve hour bed rest regimen showed a range from 188/124 to 160/102. Sedative drugs caused a fall in pressure from 210/110 to 168/100. The cold stimulus test caused a rise in pressure from 188/120 to 212/140. The cardiac size was normal. Electrocardiographic findings included inverted T_1, QRS_1 low and quadriphasic, T_2 and T_3 sharply inverted, ST_4 elevated, T_4 high.

CASE 8.—*Essential hypertension.* H. W., a white woman aged 27, complained of headaches, tiring easily, nervousness and palpitation. The patient appeared in good health but seemed quite apprehensive. Her blood pressure was 222/138. A chest roentgenogram revealed localized densities in the right apex which represented an old tuberculous lesion. The ocular fundi showed a grade 1 hypertensive retinopathy. The urine was normal. The phenolsulfonphthalein excretion test was 45 per cent in fifteen minutes. The urea clearance was 60.6 cc. (maximal clearance). The maximum urinary specific gravity was 1.030. During a twelve hour period of bed rest the hourly blood pressures varied from 184/128 to 260/150. Sodium amytal caused a fall in pressure from 244/144 to 156/106. The change under sodium nitrite was very similar. The cold stimulus test caused a rise of 20 mm. of mercury systolic and 7 mm. diastolic. The intravenous urogram was normal. The electrocardiogram revealed an inverted T_3 and the heart size was normal. The blood nonprotein nitrogen was 33 mg. per hundred cubic centimeters.

CASE 9.—*Essential hypertension.* A. S., a white woman aged 33, complained of shortness of breath on exertion, headaches, dizziness and some precordial distress for one year. Late in her second pregnancy, one year previously, her blood pressure rose to 160/110. She appeared in good health on the present admission to the hospital. The ocular fundi showed a grade 1 hypertensive retinopathy. The blood nonprotein nitrogen was 30 mg. per hundred cubic centimeters. Urine studies were negative. The urea clearance was 43 cc. (maximal clearance). The phenolsulfonphthalein excretion was 30 per cent in fifteen minutes. The maximum urinary specific gravity was 1.030. During a twelve hour period of bed rest the hourly blood pressures varied from 130/80 to 172/108. Under sodium amytal the blood pressure fell from 148/90 to 122/70. Sodium nitrite caused a fall of 16 mm. systolic and 6 mm. diastolic. The cold stimulus test caused a rise of 20 mm. systolic and 22 mm. diastolic. The heart size was normal. The electrocardiogram revealed left ventricular preponderance.

CASE 10.—*Essential hypertension.* J. W., a white man aged 24, complained of weakness, dyspnea on exertion, joint pains, a postnasal drip and maxillary sinusitis. The patient had had rheumatic fever at the age of 12 and again at the ages of 16 and 17. Recently his family physician had noted a hypertension of 185/120. On admission to the hospital he was ambulatory and appeared in good health. His blood pressure was 158/88. The thyroid gland was somewhat diffusely enlarged. There was a loud systolic murmur heard over the apex. The basal metabolic rate was minus 6 per cent. The erythrocyte sedimentation rate was 10 mm. per hour corrected. The blood cholesterol was 210 mg. per hundred cubic centimeters. The blood nonprotein nitrogen was 34.7 mg. per hundred cubic centimeters. The urea clearance was 37 cc. (standard clearance). The phenolsulfonphthalein excretion was

10 per cent in fifteen minutes. The ocular fundi showed a grade 1 hypertensive retinopathy. Sodium amytal caused a fall in pressure from 160/90 to 118/80. Sodium nitrite caused a drop of 18 mm. systolic and 10 mm. diastolic. Cold stimulus test caused an elevation of 16 mm. systolic and 36 mm. diastolic. The electrocardiogram showed inversion of T_3. The heart size was normal. The urogram was normal and the maximum urinary specific gravity was 1.034.

CASE 11.—*Chronic glomerulonephritis.* L. S., a white man aged 35, complained of itching and pigmentation of the skin for nine months and weakness for one year. His past history was irrelevant. He appeared anemic and showed a peculiar light "bronzelike" appearance of the skin. He was ambulatory. His blood pressure was 110/70. The erythrocyte count was 1.5 million per cubic millimeter and there was 5 Gm. of hemoglobin per hundred cubic centimeters (Sahli). Urinalysis was negative. The blood nonprotein nitrogen, urea nitrogen and creatinine were 128.6 mg., 85.5 mg., and 9.1 mg. per hundred cubic centimeters respectively. The carbon dioxide combining power was 30 cc. per hundred cubic centimeters of plasma. Serum proteins were normal and the icterus index was 7 units. The ocular fundi were normal. The urea clearance was 5 cc. per minute (standard clearance). The cardiac size was normal. The intravenous urogram was unsatisfactory because of the failure of the diodrast to be excreted in a quantity sufficient to cause visualization.

CASE 12.—*Chronic glomerulonephritis.* H. M., a white woman aged 23, complained of headaches, occasional vomiting and some pain in her lumbar region for one year. She had been told previously that she had hypertension. Symptoms started with her first pregnancy one year previously, when she had had toxemia associated with her pregnancy. Examination revealed a blood pressure of 184/114. Urinalysis showed 4 plus albuminuria (heat-acetic acid test), an occasional granular cast and pus cell but no erythrocytes. The urea clearance was 16 cc. (maximal clearance). The blood nonprotein nitrogen, urea nitrogen, uric acid and creatinine were 54.7 mg., 34 mg., 5.3 mg., and 4.5 mg. per hundred cubic centimeters respectively. Intravenous urograms showed unusually small kidneys bilaterally. Ocular fundus examination revealed a grade 2 hypertensive retinopathy. Cold stimulus test caused a rise in blood pressure from 182/120 to 208/172. Sodium amytal caused a fall in pressure from 174/116 to 142/100.

CASE 13.—*Chronic glomerulonephritis.* R. R., a white woman aged 22, complained of backaches, headaches, dizziness, some swelling of her face and ankles and slight visual disturbances for one year. Her past history indicated some "kidney trouble at the age of 3 years," at which time she had been seen by a "kidney specialist." One year prior to admission she was told she had pus and albumin in her urine. Urinalysis revealed 3 plus albuminuria (heat-acetic acid test) and an occasional pus cell but no erythrocytes or casts. There was poor visualization of the urinary tract by intravenous urography. A right retrograde pyelogram showed questionable pyelectasis with blunting of the calices. There was essentially no response to the cold stimulus test except in the diastolic pressure, which rose 16 mm. of mercury. Hourly blood pressure readings during twelve hours of bed rest varied from 130/82 to 150/110. Sodium amytal caused a fall in pressure of approximately 14 mm. of mercury systolic. Sodium nitrite caused a fall of 22 mm. systolic and 12 mm. diastolic. The urea clearance was 22.3 cc. (maximal clearance). The phenolsulfonphthalein excretion was 15 per cent in fifteen minutes. The blood nonprotein nitrogen was 42 mg. per hundred cubic centimeters. Cardiac size was normal, as was the electrocardiogram.

CASE 14.—*Chronic glomerulonephritis.* C. V., a white man aged 30, complained of headaches and swelling of his feet and eyelids for several months. He had had scarlet fever at the age of 20. At the age of 24 and several times thereafter he had had gross hematuria. In 1940 he had definitely swollen ankles. Examination revealed a blood pressure of 196/124. There was a 4 plus albuminuria (heat-acetic acid test), occasional granular and hyaline casts, erythrocytes and pus cells. Ocular fundus examination revealed a grade 4 hypertensive retinopathy. Urea clearance was 21 cc. (standard clearance). Blood nonprotein nitrogen was 44 mg. per hundred cubic centimeters. Serum albumin was 2.3 per cent and serum globulin was 17 per cent. Sodium amytal caused a fall in blood pressure from 190/124 to 142/116. The cold stimulus test caused a rise of 44 mm. systolic and 16 mm. diastolic. Heart size was normal.

ABSTRACT OF DISCUSSION

DR. BENJAMIN JABLONS, New York: I have studied effects on renal blood flow by means of a different approach. This consisted in explanting the kidney subcutaneously and externally. Thus, temperature changes in the kidney could be determined under the influence of various environmental and local as well as indirect temperature modifications. In rabbits and dogs the kidney was exteriorized, so that temperature changes could be determined directly by the application of a thermocouple to the exposed surface of the kidneys. Dogs, in which exteriorization did not prove as practicable as it did in rabbits, were studied by means of a subcutaneous thermocouple. Environmental temperature changes produced little effect in the exteriorized kidney of the rabbit. In the dog, the application of cold or heat directly over the skin covering the surface of the explanted kidney failed to influence the temperature change in any great degree. Immersion of the hind legs in cold water produced little change. However, in 1 dog (that was hypertensive) with one kidney explanted and one kidney removed we found that the use of hot packs did seem to change the temperature about 1 to 2 degrees C. However, if the hind legs were immersed in water the kidney temperature changed but little. Another point observed was that in the kidneys which were exteriorized the kidney temperature remained much the same on a hot day as when the temperature was much reduced. In the main these findings are in agreement with the experience reported by the authors.

Clinical Notes, Suggestions and New Instruments

A FOREIGN BODY FINDER: THE LOCATOR

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There has always been difficulty in accurately locating metallic fragments embedded more or less deeply in human tissues. For decades many devices have been tried, most of them based on the principle of the magnet. Some of these were designed so that a sound effect or a light effect gave added information. Many variations of roentgen triangulation have also been used. However, few of these provided substantial help until the operative zone was uncovered; but thereafter in many cases these magnetic devices failed to act because of the interposition of the body fluids or tissues. So-called telephone probes and allied instruments were useful only within certain limits. In World War I, the Bergonié apparatus was probably used more satisfactorily than any other, but it was very bulky (about the size and shape of a flower pot) and often failed when the embedded fragment was small.

Practically all these devices functioned only for iron or steel, and unfortunately many foreign bodies are of the nonmagnetic type, notably lead. X-ray aid is obviously of great value, and to the ordinary film many accessories and markers have been added more positively to delineate the hidden object. Nevertheless in many cases the search is prolonged and fruitless even though the films had been carefully prepared and skilfully interpreted. In civilian as well as in military experience there was real need for some device that would act in association with or independent of x-ray aid.

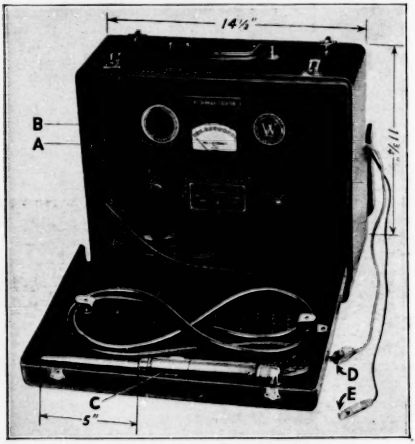
Such a "diviner" should locate the object accurately prior to the operative exposure and be equally effective in determining the depth in the wound. It should give a visible response on the dial or other indicator and become activated by fragments of iron, steel, copper, silver, aluminum, lead or their

The Locator was demonstrated at the New York Surgical Society, April 22, 1942.

combinations. Likewise, the electrical source should be of the ordinary plug in type or come from a storage battery or dry cells. Such elements as cost, size, sturdy construction and portability were also involved.

An apparatus fulfilling many of these requirements has been perfected and is in production.[1] It is called the "Locator" and was devised for me by Samuel Berman of the electrical engineering department of the New York City Transit System. After more than a year of experimentation the first trial of the apparatus was made by me in November 1941 at the Reconstruction Hospital Unit of the Post-Graduate Hospital on a police officer who had been one of the victims in the bomb explosion at the New York World's Fair in July 1939. Several metallic fragments were removed from the region of the patient's ankle and purposely, so that an extreme test might be made, no x-ray aid was employed.

I took this apparatus with me to Honolulu in December 1941 to demonstrate it before a group of physicians who had invited



Appearance and dimensions of the Locator.

me to give a series of lectures on traumatic surgery. The first mass usage of the device was at Tripler General Hospital at the time of the Pearl Harbor attack, where I returned to army duty as Colonel, Surgical Consultant. At this U. S. Army hospital many of the surgical personnel used the locator with great success and indeed on two successive days removed 21 embedded fragments without a single failure.

While there, my own most satisfactory experience with the locator was in the removal of a machine gun bullet lodged within the spinal canal at the upper lumbar level, and without this "diviner" it is doubtful whether the missile would have been found despite the accurate localization afforded by many roentgenograms. The original apparatus was left at this hospital, and since returning I have used successive improved models successfully in several civilian cases.

The general appearance of the locator in size and shape suggests a portable radio. On the front panel are the dial (*A*) to record the proximity of the object and a single control knob (*B*) for regulating the sensitivity of the apparatus. The probe or finder (*C*) is the size and shape of a large fountain pen; it is made of stainless metal or bakelite and is furnished with a sterilizable, specially fitted rubber sleeve for search within the wound. In an emergency a rubber glove or toweling or other sterilizable material may be used instead. The plug in wire (*D*) is like that of any radio. A 20 foot ground wire with a spring clip terminal (*E*) is connected to eliminate body capacity effects and static charges.

To use the apparatus, the probe or finder is passed over the suspected area and the movements of the needle on the indicator dial are observed. As the probe comes closer to the metal particle, the needle moves higher on the dial scale until the point on the surface is found which gives the highest reading. This gives the skin or surface location and to some degree denotes also the size and composition of the metal. However, it is also necessary to know the subsurface depth, and to obtain this I select a piece of metal of the same composition and the approximate dimensions as shown on the x-ray film and approach the probe with it until the dial reading is the same as the reading previously noted on the surface location on the patient's body. The distance between the test object and the probe then equals the subsurface depth. This determination is exceedingly accurate and will usually not vary more than 1/10 inch. The fact that in the surface location there was intervening tissue while in the case of the comparison reading with the test object the measurements were in air is entirely immaterial, because animal tissue and air have practically identical permeability to magnetic lines of force.

If when the incision is made the foreign body is not immediately discovered, the probe (covered with its sterile sleeve) is placed in the wound and moved lengthwise with respect to the incision to a point at which the highest reading is obtained. Then the probe is pressed against each of the two walls of the incision in turn to determine by the higher of the two readings which wall contains the foreign body. The probe is then slowly raised and lowered and is stopped at the depth which gives a maximum reading on the indicator dial. In this way the correct direction in which to proceed is accurately ascertained. Obviously all metallic instruments are laid aside while the search proceeds. Wooden tongue depressors or plastics can be used for temporary retractors.

The probe handle has a control by which the operator can at will make most of the necessary adjustments without requiring an assistant at the instrument panel. There is a pilot light to show when the instrument is in use.

An apparatus working on similar principles has been used to locate buried ores or metals. The relative sensitivity of the locator to the various metals is in the order named: iron, steel, silver, copper, gold, aluminum, magnesium, platinum, lead.

So far as I know, there is no identical device, although in Great Britain [2] and in Germany [3] foreign body devices of a new design are said to be in use. Some of these are x-ray adaptations; others are superheterodyne modifications.

This locator was recently used at the New York Post-Graduate Hospital to extract a metallic fragment (approximately 1/4 by 1/8 by 1/32 inch) from the front of the lower third of the thigh, where it presumably lay close to the bone. The surface location and depth extent were easily registered, but it required four insertions of the probe before the surgical route was determined sufficiently to extract the fragment without enlarging the original external incision. It is quite certain that I would have failed without the aid of this device. On another occasion a small foreign body was removed from the deltoid region after two previous vain attempts had been made elsewhere. Concededly in many cases it is entirely unnecessary to extract a foreign body in a silent or inaccessible region. However, the possessor of even a tiny fragment is often unwilling to permit it to remain for fear that "it may wander." Such anxiety is usually unwarranted, because an embedded fragment almost

1. Waugh Laboratories, 420 Lexington Avenue, New York.

2. Lancet **2**: 517-518 (Nov. 1) 1941.

3. Zentralbl. f. Chir. **67**: 2338-2344, 1940. München. med. Wchnschr. **88**: 353-380 (March 28) 1941.

invariably remains in situ, imprisoned in scar tissue which usually appears very promptly. Within cavities the wandering tendency of lost instruments is of frequent occurrence, as for example in the abdomen, where artery clamps and the like are sometimes found quite distant from the operative zone, and the locator in such cases may be useful.

In the civilian as well as in the war zone this apparatus appears to have the following advantages:

1. Portability combined with sturdy construction and adaptability to any electrical source.
2. Ability to be used as an accessory to fluoroscopy and to x-ray films or without them.
3. Susceptibility of being used within the wound.
4. Responsiveness to many kinds of metals.
5. Ease and certainty of application.

115 East Sixty-Fourth Street.

SCHISTOSOMIASIS INFECTION: REPORT OF TWO CASES FOUND IN NORTHERN MICHIGAN

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We record here 2 cases of Schistosomiasis hematobium infection found in northern Michigan. The widespread migration resulting from conditions associated with the war will introduce into the United States and Canada diseases endemic in foreign countries. Unless possible occurrence of tropical disease is considered, wrong or missed diagnoses will be inevitable. People who have spent much time in the tropics are apt to be more familiar with some tropical diseases than many physicians in this country.

Schistosomiasis is endemic chiefly in the Mediterranean countries, the Near East and over most of Africa and nearby islands. A review of the etiology, pathogenesis, symptomatology and treatment would appear superfluous at this time, since they are adequately described in all modern textbooks of tropical medicine.

The majority of reported cases in this country have been well advanced and diagnosed relatively late in the course of the disease. As far as we have been able to learn from the literature, there have been no cases reported in this country which had been diagnosed prior to the onset of symptoms. Manson[1] states that the incubation period ranges from three months to two and a half years. Our cases are consistent with this observation. Most cases of schistosomiasis reported in this country have been concerned with Schistosoma hematobium. Schistosoma mansoni has been found by Hoff[2] in New York, and Schistosoma japonicum has been reported from New Orleans by Hauser.[3]

The cases reported here are examples of a definitely known incubation period. So far as we have been able to determine, case 2 is the only case in this country diagnosed prior to the development of symptoms.

REPORT OF CASES

CASE 1.—A white boy aged 9 years, seen March 25, 1942, complained of bloody urine for the past three months and enuresis for two days. He stated that for the past three months he had noted a small amount of blood at the end of urination. At first this appeared every three to four days, but in the past week it had occurred daily, the blood being seen usually at the midday urination. There was no history of recent infection or injury. In other respects he appeared to be in good health. The boy was born in South Africa, where his parents had been missionaries. The mother stated that there were many rivers in this part of Africa which were infested with snails. Approximately a year before admission the boy had swum in a river near Durban, Natal, on the East coast of Africa. He had not been swimming in natural waters in Africa at any other time. The family returned to the United States in June 1941. Since that time they had lived in northern Michigan.

The boy was moderately thin, was 55½ inches (141 cm.) tall and weighed 63 pounds (28.6 Kg.). The temperature was 98.8 F., the pulse rate was 92 beats a minute and the blood pressure was 96 systolic and 62 diastolic. The only demonstrable physical abnormality was a slight tenderness in the right renal area.

The laboratory studies showed a hemoglobin of 81 per cent (13.4 Gm.) and an erythrocyte count of 4,100,000, giving a color index of 0.99. The hematocrit determination showed a volume index of 1.2. The leukocyte count was 11,400, with a differential count of neutrophils 50 per cent, lymphocytes 48 per cent, basophils 1 per cent and monocytes 1 per cent. Subsequent differential counts showed as high as 11 per cent eosinophils. Urine specimens were normal except for the terminal few drops, which showed numerous pus cells and erythrocytes and numerous colonies of Staphylococcus aureus. The blood urea was 10 mg. per hundred cubic centimeters and the Kahn precipitation test for syphilis was negative.

On the basis of these findings he was treated with sulfathiazole. In two weeks the pyuria had disappeared and urine cultures became negative. However, the terminal bleeding persisted. Because of his having lived in a region in which schistosomiasis is endemic, a search for Schistosoma was made repeatedly on the terminal portion of urine specimens until a typical ovum of Schistosoma hematobium was discovered four weeks after the patient was first seen. The appearance of the ovum is shown in the accompanying illustration.

Because of the finding of Schistosoma, urine and stool examinations were done on the rest of the family—the parents, two sisters and one brother. The findings were negative in all but the brother.

CASE 2.—Ova were isolated in the urine of the 12 year old brother on April 25, although he had had no symptoms and had appeared to be in good health. However, on May 8 terminal hematuria first appeared. He had been swimming with his brother in the Njongwane River in Natal, South Africa, in January 1941 and had been on several walking trips, crossing some of the smaller streams.

The boy was healthy appearing, was 64½ inches (164 cm.) tall and weighed 104 pounds (47 Kg.). The temperature was 97.2 F., the pulse rate was 80 beats a minute and the blood pressure was 114 systolic and 74 diastolic. The laboratory findings were a hemoglobin of 77 per cent (12.8 Gm.), an erythrocyte count of 3,780,000 and a leukocyte count of 7,000, with 36 per cent lymphocytes, 44 per cent neutrophils and 20 per cent eosinophils. Several urinalyses were negative, except for the presence of both pus cells and erythrocytes varying from 1 plus to 4 plus and demonstrable ova of Schistosoma hematobium in most specimens. The urine culture showed 15 colonies of Staphylococcus aureus to 0.5 cc. of urine. The blood urea was 17 mg. per hundred cubic centimeters and the Kahn precipitation test for syphilis was negative. The patient was not given any treatment for the staphylococci in the urine.

TREATMENT

Intramuscular injections of fuadin were started on both patients. Each was given an injection in the gluteal muscles of 0.5 cc. the first day, 1.5 cc. the second day and thereafter

From the Burns Clinic.

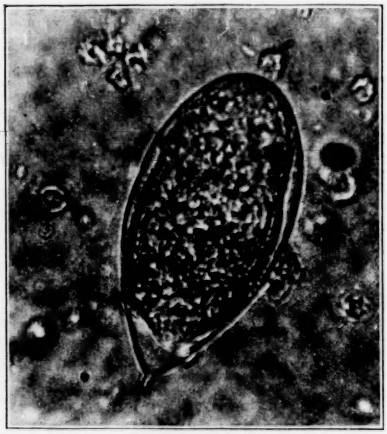
1. Manson-Bahr, Philip: Manson's Tropical Diseases, ed. 10, London, Cassell & Co., Ltd., 1935, pp. 659-685.
2. Hoff, Amanda: Schistosomiasis: Report of Two Cases, J. A. M. A. **107**: 1375-1378 (Oct. 24) 1936.
3. Hauser, G. H.: Schistosomiasis: Report of a Case, New Orleans M. & S. J. **92**: 265-270 (Nov.) 1939.

3.5 cc. was given until a total of 30 cc. (1.9 Gm.) had been given. The ova continued to appear in the urine until two weeks after fuadin was started, then no further ova were found.

Except for mild muscular pain at the site of the injections, no local or systemic reactions occurred. Supplementary treatment was not given. The family then moved to southern Michigan, from where the mother of the patients reported to us that a second course of fuadin had been given to the younger boy because of a recurrence of ova in the urine. According to reports from the mother, there has been no further evidence of the disease up to September 1942.

COMMENT

According to a survey of the available literature, the 2 cases reported by us bring to 33 the total number of cases found and reported in the United States and Canada. Of these, the only case previously reported in Michigan was that of Campbell [4] in 1938. Apparently the only instance of the disease occurring in a person who had never been in a country in



Ovum of Schistosoma hematobium (× 800).

which the disease is endemic is the case reported by Sullivan.[5] The infection in this instance was apparently acquired by the patient's playing with an aquarium stocked with Egyptian snails.

A possible second exception is the case reported by Peacock and Voegtlin [6] in which the patient died of heart disease the day after the diagnosis of schistosomiasis was made.

There appears to be little reason to fear that any cases except those brought into this country will occur. It is believed that there is no intermediate host in this country such as the special snails found in the region in which the disease is endemic.

SUMMARY

The two cases of Schistosoma hematobium infection here presented are, we believe, examples of a diagnostic and therapeutic problem requiring the alertness of civilian physicians, since one may logically anticipate many cases of chronic diseases endemic in foreign countries in the next few years.

4. Campbell, D. A.: Vesical Bilharziasis, J. Urol. **40:** 598-605 (Nov.) 1938.

5. Sullivan, S. J.: Schistosoma Hematobium: A Sporadic Case in Illinois, J. A. M. A. **98:** 1642-1643 (May 7) 1932.

6. Peacock, A. H., and Voegtlin, M. B.: Sporadic Occurrence of Bilharziasis in Washington, Northwest Med. **34:** 174-176 (May) 1935.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE. HOWARD A. CARTER, Secretary.

THE THERAPEUTIC VALUE OF ULTRAVIOLET RADIATION

(Continued from page 623, volume 120)

INDOLENT WOUNDS [7]

In certain cases of indolent ulcers and wounds, occasional erythema doses of ultraviolet radiation or daily treatment with graduated doses of solar radiation or artificial ultraviolet rays seem to be helpful. Some indolent ulcers and wounds appear to respond rapidly and favorably to both solar and artificial ultraviolet radiation. On the other hand, ulcers occurring in Raynaud's disease or in thromboangiitis obliterans and also old chronic varicose ulcers do not respond to ultraviolet radiation.

ERYSIPELAS [7]

Good results have been obtained in erysipelas with both x-rays and ultraviolet rays. Recently many reports have appeared in the literature which show that ultraviolet radiation is a safe and successful method for the treatment of erysipelas, especially in the very young and the old. Many times the erythema dose (eight to twenty) of ultraviolet rays from a quartz mercury arc generator is applied at one sitting to the diseased area including an inch or two of the normal surrounding skin. The treatment is repeated a second or a third time and, if necessary, a fourth or fifth time on successive days. Since erysipelas responds so well in all ages to the sulfonamides, ultraviolet radiation is being used less frequently. The sulfonamides are photosensitizing drugs. Therefore they should not be used in conjunction with ultraviolet rays.

BLOOD [1]

While irradiation with ultraviolet may have some effect on secondary anemia, this effect is limited and not specific and far less efficient than dietetic and drug treatment.

Intense ultraviolet radiation may result in abnormal white blood cell counts. There is no unequivocal evidence that ultraviolet radiation increases resistance to specific or general infection, although a relationship between sunlight and the general course and character of disease, growth and nutrition has been demonstrated.

BLOOD PRESSURE [1]

From a clinical standpoint the claim that ultraviolet rays reduce blood pressure has not been sufficiently established by the majority of those who have had long experience with natural or artificial heliotherapy to command acceptance. Most investigators feel that, while exposure of the entire body to ultraviolet rays may produce some reduction in blood pressure in certain individuals, this reduction is too light and inconstant to be of clinical value. The lowered blood pressure of persons living in the tropics is the result of the action of a number of characteristics, racial, mode of life, meteorological conditions and their changes, and cannot be correlated with the quantity and quality of radiation.

DERMATOSES [7]

It appears to be the general impression in the medical profession and among lay persons that ultraviolet irradiation is of great value in dermatology. However, most of the therapeutic claims have not been corroborated and may be disregarded. There is sufficient evidence to justify the belief that ultraviolet radiation is a valuable remedy for erysipelas and for certain types of cutaneous and subcutaneous tuberculosis. It is reasonably well established that ultraviolet radiation is at times useful either alone or as an adjuvant for the treatment of acne vulgaris, adenoma sebaceum, pityriasis rosea, parapsoriasis, psoriasis, telangiectasia, indolent ulcers and wounds. While there is some difference of opinion among dermatologists, the majority, while admitting occasional good results that appear to be due to the radiation, do not consider it an important agent in the management of other disorders.

7. MacKee and Cipollaro: Ultraviolet Therapy in Dermatology, Handbook of Physical Therapy, ed. 3, pp. 333-358.

Some physicians believe that ultraviolet radiation improves the color and texture of the complexion. Such statements are not in agreement with the consensus of dermatologic opinion.

Diseases Due Partly or Wholly to Pyogenic Organisms.—Acne Vulgaris: At least 60 per cent of the patients can be cured with conventional dermatologic therapy in from a few months to a year without recourse to ultraviolet therapy. Such treatment embraces the proper choice of topical applications, adequate instruction and advice, attention to hygiene and diet, and attention to various possible internal disturbances.

Erythema or flushing doses of artificial ultraviolet radiation or solar radiation once or twice a week, or daily if toleration is high, will very often cause the eruption to improve or disappear, but unfortunately recurrence is the rule. Rapid temporary improvement in selected cases is obtained often by producing an acute reaction followed by desquamation. Most dermatologists agree that the radiation is a useful adjuvant when treating recalcitrant cases. In such instances it supports topical remedies and other conventional measures. It may be combined with x-rays, but, if so, it is advisable to avoid erythema.

Acne vulgaris is divided into a number of clinical varieties. The intelligent management of the disease requires a clinical knowledge of the various types because the therapeutic indications differ somewhat with the type. Acne indurata is the common type. It is encountered mostly in late adolescent and early adult life and is chronic in course and appearance. In addition to comedones, patulous follicular orifices and scars there are numerous large, deep seated pustules and perhaps occasional indolent cystlike lesions. The skin is likely to be excessively oily. This type usually tolerates and responds well to vigorous treatment.

The more acute types—acne pustulosa and acne erythematosa—are more likely to be associated with detectable and correctable systemic disturbances. It is advisable to begin treatment with soothing topical remedies before resorting to physical therapy.

Comedo and acne papulosa are seen most often at puberty. The lesions consist of blackheads and papules, and there may be also some pustules and an oily skin. At times these types disappear spontaneously or yield quickly to stimulating topical remedies. Not infrequently, however, it is impossible to cure the puberty cases permanently until the patient is somewhat older. It is possible, as a rule, to control the disorder through this period with suitable topical remedies or with ultraviolet radiation or both. It is important to do so; otherwise acne indurata, oily seborrhea, scars and a coarse skin are apt to develop.

Although ultraviolet radiation has been blamed for superfluous hair in cases of acne vulgaris, it is generally agreed that this agent cannot make hair grow on glabrous skin. Hypertrichosis in association with acne vulgaris has been noted in the absence of local treatment of any kind. However, when girls and women have a tendency to grow hair on the face it is theoretically possible that the frequent application of any remedy producing hyperemia might encourage the growth.

Rosacea and Rhinophyma: Rosacea can almost always be cured by giving adequate attention to the internal causes combined with suitable topical remedies. Irradiation is of little if any value. Ultraviolet radiation is usually not well borne, although it may be of service in an occasional selected case. So far as concerns local treatment, the best results in cases of hypertrophic rosacea and rhinophyma are obtained with multiple scarification, surgical diathermy and scalpel surgery.

Acne Varioliformis: Ultraviolet radiation is of doubtful value.

Sycosis Vulgaris: Ultraviolet radiation appears to have very little effect on the disease. Under the heading of sycosis may be included chronic pustular folliculitis of the bearded region of male adults, the eyebrows, the scalp and the pubic region. In such cases general body irradiation with solar or artificial ultraviolet radiation may be tried, but there is no real evidence that such treatment is of value.

Furunculosis and Carbunculosis: Many physicians believe that an erythemal or a blistering dose of ultraviolet radiation preferably with a water cooled lamp with compression, when applied to a boil in the very early stage of evolution, will either abort the lesion or greatly modify further development. In the hands of most dermatologists this procedure has been uncertain and disappointing. Recurrent boils indicate some constitutional fault—organic, functional or immunologic—which must be corrected if possible. In such instances it is possible that a long course of general body irradiation, using either the sun or an artificial source of light, might prove beneficial. While the general impression is that such treatment is helpful, there is no conclusive evidence that this is so.

Miscellaneous Pyogenic Disorders: Ultraviolet ray treatment or heliotherapy may be of service in cases of acne conglobata (acne cachecticorum) but the result is usually disappointing. Good results have been reported with ultraviolet radiation in cases of perifolliculitis capitis abscendens et suffodiens, but the evidence is insufficient for an evaluation.

Diseases Due to Fungi.—Many of the fungous dermatoses—blastomycosis, actinomycosis, onychomycosis—have been treated with ultraviolet radiation with poor results. Perlèche, a disease of the buccal commissures, may be due to bacteria, fungi or to a deficiency of nicotinic acid or riboflavin; ultraviolet radiation has not proved efficacious in this disease. Many eruptions due directly or indirectly to fungi and known as dermatophytosis and dermatophytid are discussed under the heading of eczema.

Eczema: It no longer suffices to say that a certain agent is of value in the treatment of eczema. Today the unqualified term eczema signifies inflammation of the skin (dermatitis) having certain characteristics that are not so frequently encountered in other eruptions. Each of the number of clinical types of eczema has a somewhat different cause and exhibits fairly definite characteristics. While the therapeutic indications are somewhat different for the various types, each clinical variety has certain features common to all.

Eczema venenatum (dermatitis venenata) is caused by external contact with a substance to which the patient has become sensitized. Well known examples are rhus dermatitis, dye dermatitis and trade eczema. Naturally the logical procedure is to ascertain and remove the cause. Ultraviolet radiation is not indicated in this type.

Dermatophytosis is a convenient term coined by Highman to indicate eczema caused by fungi, of which there are several types. To general practitioners and to the public these conditions are known as ringworm, or "athletes" foot.

The keratotic type occurs mostly on the palms and soles and consists, as the name implies, of a thickened horny layer. The interdigital and vesicular varieties are the common types of dermatophytosis. Ultraviolet radiation has been advocated, but the results do not warrant its recommendation.

Infectious eczematoid dermatitis is a more or less generalized eczema that develops secondary to a discharging sinus, ulcer or wound. Ultraviolet radiation is also ineffective in this type.

Neurodermatitis occurs in two forms—circumscribed and disseminate. The circumscribed type (lichen chronicus circumscriptus), seen mostly in adults, resembles patches of chronic lichen planus and shows a predilection for the flexures—the sides of the neck, the cubital and popliteal spaces, and flexor surfaces of the thighs: and for certain extensor surfaces—the elbows and knees—where it may exhibit a strong resemblance to psoriasis, and the back of the neck in women (eczema nuchae). The Fox-Fordyce disease of the axillas and pubic region is probably a rare type of circumscribed neurodermatitis. Patches of circumscribed neurodermatitis range in size from a dime (18 mm.) to an adult palm. A full erythema dose of ultraviolet radiation may be followed by improvement, but the results are uncertain.

The disseminate type of neurodermatitis, when severe, is one of the most recalcitrant and distressing of the dermatoses. It occurs for the most part in patients who give a personal or family history of allergic disorders—urticaria, hay fever, asthma—and the patient is often sensitized to a large number of substances—food proteins, epithelial products (hair, dander, feathers), pollens and bacterial proteins. The neurogenic factor is prominent, and there may be endocrine dysfunction. The disease is common in infants, children and adolescents, less common in young adults and uncommon in older persons. There are acute exacerbations and remissions, both of which may be of short or long duration. Itching is likely to be almost intolerable.

There is a difference of opinion regarding the efficacy of ultraviolet radiation (general body irradiation) in neurodermatitis. Certainly many patients improve when they are able to indulge in heliotherapy, but it has been impossible thus far to determine whether the improvement is due to a combination of environmental factors (rest, relaxation, contentment, salt water bathing, effect of moving air on the naked skin, change of climate, escape from causative proteins) or to ultraviolet radiation.

Only occasional good results are obtained with artificial ultraviolet radiation, and in these instances improvement might have been due to other factors. Many patients have a low tolerance for radiant heat and appear to be made worse with small doses of ultraviolet radiation. Amounts sufficient for erythema are likely to precipitate an exacerbation.

Eczema seborrheicum (dermatitis seborrheica) presumably a bacterial, rather polymorphous, type of eczema in its most simple form may consist of dandruff, a few scaly patches on the face and ears, or excessive oiliness of the face and scalp. The more severe eruptions consist of exudative and crusted patches on the head, scaly patches and patches of follicular papules on the trunk, and erythematous scaly patches under pendulous breasts and in the pubic and crural regions. It is often difficult to differentiate between seborrhea, dermatophytosis and psoriasis. Occasionally ultraviolet radiation appears to give good results, especially erythema doses for chronic dry patches, but in general it may be stated that ultraviolet radiation has not been of much service in the management of this form of eczema.

Eczema hemostaticum (dermatitis hemostatica) generally occurs on the legs of elderly persons and is due primarily to poor local circulation caused by varicose veins, cardiovascular disturbances, renal inefficiency, tight circular garters and so on. Additional causes are scratching and infection with pyogenic organisms. The principal treatment consists in support for the circulation (elastic stockings) and the correction of constitutional disturbances. Ultraviolet radiation appears to be of benefit for the indolent ulcers that so often complicate the disorder and it may be of service when the skin is considerably thickened. On the whole, however, ultraviolet radiation is not efficacious for this type of eczema.

Intertrigo is an erythema occurring in locations where the parts are in contact (axillas, crural region) and is due to friction, heat and unhygienic conditions. Dermatitis, with edema, exudation and crusting, may develop (eczema intertrigo). Differentiation must be made from dermatophytosis. Ultraviolet rays have been used for recurrent eruption with questionable results.

The term infantile eczema signifies no more than eczema occurring in an infant. Usually such eczema is one of the enumerated types or a combination of two types. So far as concerns ultraviolet, there are no special indications other than those found throughout the section dealing with eczema.

Many dermatologists claim that ultraviolet rays are useful for many varieties of eczema and in selected cases this is possibly true, but in general terms American dermatologists agree that ultraviolet radiation is not of much value in this disease. It is not indicated in acute eczema. General body irradiation may be of some value in selected cases of chronic eczema. At times, any agent that will evoke hyperemia in a patch of chronic squamous eczema will hasten recovery. Ultraviolet radiation may be used for this purpose; however, judgment is required or the condition is apt to get worse instead of better. Such treatment may be successful, but the physician is taking a risk.

Psoriasis, Parapsoriasis, Dermatitis Exfoliativa, Lichen Planus: In psoriasis, ultraviolet radiation in amounts sufficient to cause erythema, applied to the individual lesions about once a week, will at times promote resolution. Such treatment, however, is not particularly efficacious and, if the erythema involves the normal skin, the lesion may spread over the entire area of erythema.

Daily heliotherapy to the entire body, irrespective of the location of the eruption, or daily general body irradiation with artificially produced ultraviolet rays, is thought by many dermatologists to be of value. It is advisable to avoid erythema because the too vigorous treatment of psoriasis, especially the more acute types, may favor the development of dermatitis exfoliativa. In fact, radiation is contraindicated in the acute types. If general body irradiation is proved to be of real value, it would seem to be a particularly favorable treatment for children. Goeckerman and O'Leary's coal tar technic appears to have given better results in psoriasis than the use of ultraviolet radiation alone. This consists in applying a 3 per cent crude coal tar ointment at night. The next morning the ointment is wiped off. This is followed by irradiation of the entire body, after which a bath may be taken. When possible, the treatment is given daily. The most that can be hoped for in psoriasis is control of the disease; it cannot be cured.

Remissions in parapsoriasis, an incurable disease, have been reported with erythema doses of ultraviolet radiation. There are several types of the disease, only two of which have at the present writing responded temporarily to the treatment—the papular and the plaque or patch types.

Ultraviolet radiation has not been found useful in dermatitis exfoliativa.

Pruritus; Prurigo.—Ultraviolet radiation is recommended by some for the various types of essential pruritus—pruritus ani, pruritus vulvae, so-called senile pruritus—but the majority of dermatologists have not been favorably impressed with the results. Erythema doses may increase the pruritus.

Ultraviolet rays have been advocated for the relief of pain associated with diseases such as zoster. They appear to be of little service for this purpose.

Prurigo nodularis does not yield well to ultraviolet rays, although a few apparently satisfactory reports have been published. The same statement applies to prurigo mitis and prurigo ferox.

Diseases of the Appendages.—In hyperhidrosis, ultraviolet radiation is not usually effective.

Although pompholyx is thought by some to be an entity, the majority appear to believe that it is a variety of dermatophytosis or dermatophytid. Often it is but a transient eruption. In any event, ultraviolet ray treatment has proved disappointing.

Alopecia may be divided into alopecia areata and alopecia prematura. The first consists of circumscribed bald patches on the scalp or face. In some instances the entire scalp, the face and even the trunk and extremities may be involved—alopecia totalis. The cause is not known. It may be endocrinologic or neurogenic.

Alopecia prematura may be divided into cases caused by seborrhea capitis (alopecia seborrheica) caused by systemic disturbances such as acute febrile diseases, chronic systemic disorders, neurogenic factors (alopecia systemica) and those cases for which no cause can be found except a family history of early baldness (alopecia idiopathica or hereditaria).

Although ultraviolet radiation has been used extensively by a large number of dermatologists and others in the treatment of all types of alopecia, there is now fairly general agreement that ultraviolet radiation is in no sense a specific, that it is not a "hair grower." In amounts insufficient to produce erythema it appears to be useless. Quantities sufficient for vigorous hyperemia probably do no more than hyperemia evoked by any agent—phenol, for instance. If this is conceded, ultraviolet radiation may be considered to be a useful adjuvant for the treatment of alopecia areata and the several types of alopecia prematura. It is not improbable that recovery in many cases of alopecia areata is spontaneous. The prognosis in alopecia idiopathica is unfavorable. If proper attention is given to the constitutional disturbances in cases of alopecia systemica, the prognosis is excellent. Early cases of alopecia seborrheica respond favorably to topical applications. Finally, it may be stated that all types of alopecia can be handled as successfully without as with ultraviolet radiation.

Tuberculosis of the Skin and Allied Conditions.—Lupus Vulgaris: Lupus vulgaris is definitely benefited by treatment with ultraviolet rays. A great deal of time and patience is required but the results often reward the effort. A combination of generalized and localized ultraviolet radiation yields the best results in the treatment of this condition. Excellent results by careful exposure of the entire body to sunlight have been obtained. Concentrated carbon arc light therapy by the Finsen method gives the best results, as far as concerns regional treat-

ment. Beneficial results also may be obtained with the water cooled quartz arc lamp, especially when it is possible to dehematize the area by pressure with the quartz frontpiece on the lamp. Dehematization may be obtained also with local injections of epinephrine, but the results are not as good as with compression. The dose must be heavy—several or many times the erythema dose at each sitting. Of course the reaction is severe, and the treatment is not repeated until the reaction has disappeared.

Such large doses require from five to twenty minutes. Since only a small area (a square inch or two) is covered in one exposure, a great deal of time is required for the treatment of extensive eruptions.

There is enough reliable clinical evidence available to give substantial support to the belief that daily general body irradiation with an air cooled quartz mercury arc lamp is of real value. Solar radiation of the entire body probably gives better results. Such treatments may have to be continued for several or many months. Ultraviolet therapy may be combined with general systemic treatment including bed rest and with such treatment as tuberculin injections, high vitamin well balanced adequate diet and, if proper precautions are taken, with roentgen treatment. It is not, of course, possible to cure all cases. A number of complications, such as tuberculous lymphangitis and visceral tuberculosis, may prevent the patient from reacting favorably to any treatment.

Lupus Miliaris Disseminatus: As far as is known, this type of true cutaneous tuberculosis has not been treated with ultraviolet rays. The eruption is likely to disappear spontaneously in a few months.

Lupus Erythematosus: Apparently radiation is not of much value in this condition. At times, discoid patches may be benefited with erythema doses of ultraviolet rays applied directly to the lesions. However, these patches may be made worse by such treatment. General body irradiation was formerly used, but there is sufficient evidence to indicate that erythema is followed at times by the precipitation of disseminate lupus erythematosus. Radiation was used more in former years than at present. General ultraviolet radiation in cases of lupus erythematosus not only yields poor results but may cause dangerous sequelae. Therapy with gold salts and with bismuth has given such satisfactory results that other therapeutic methods are used mostly as adjuvants in selected cases.

Tuberculosis Orificialis: Good results may be obtained with ultraviolet irradiation in cases of tuberculosis of the orificial mucous membranes. However, when the desired result is not obtained in a reasonable time, other local methods, such as x-rays, grenz rays and the electric cautery or surgical diathermy, should be seriously considered. Most orificial tuberculosis is secondary to involvement of the viscera, and general medical attention is required.

Tuberculosis Verrucosa Cutis (warty tuberculosis of the skin, verruca necrogenica, anatomic tubercle): Ultraviolet rays have not been found very useful in this disease.

Scrofuloderma: Satisfactory results have been obtained in many cases of scrofuloderma with and without tuberculous adenitis. The best treatment appears to be adequate attention to the general health, a suitable diet, tuberculin injections and daily general body irradiation with either solar radiation or artificial ultraviolet radiation. Locally applied ultraviolet radiation alone fails. Stubborn cases in which there is an underlying suppurating tuberculous focus (glands, bones) may require surgical intervention.

Erythema Induratum (Bazin's disease): The local application of ultraviolet radiation is of questionable service. These patients should be handled from a general medical standpoint—rest, light exercise, diet and general body irradiation (solar or artificial ultraviolet radiation).

Sarcoid: Thus far, ultraviolet radiation has not been shown to be of real service in the management of the two types of sarcoid (Boeck type and Darier-Roussy type). Statements made under the headings of Bazin's disease and sarcoid apply also to that apparent variant of these conditions, periphlebitis nodularis necroticans.

Granuloma Annulare: Ultraviolet rays appear to be of little if any value in this disease.

Tuberculid: Papulonecrotic tuberculids exhibit eruptions which are usually widespread and bilateral and are characterized by remissions and exacerbations. In some cases generalized ultraviolet radiations seem to shorten the course of the disease and in others radiation seems to have no effect. The treatment of lupus pernio with ultraviolet radiation is ineffectual.

Nevi.—Nevus Araneus: Spider nevi can be eradicated with blistering doses of ultraviolet radiation, but electrolysis is a much better method.

Nevus Flammeus: Port wine marks are exceedingly difficult to eradicate. Blistering doses of ultraviolet radiation, administered by the water cooled quartz mercury arc lamp with compression, may occasionally improve very faint nevi of this type and may reduce the color of more pronounced lesions.

Other types of vascular nevi and the pigmented nevi do not respond favorably to ultraviolet ray treatment.

Adenoma Sebaceum: Good results with blistering doses of ultraviolet radiation have been obtained in this disorder usually with the water cooled quartz mercury arc lamp with compression.

Telangiectasia: This condition, when occurring as a sequel to roentgen or radium treatment, can be improved with ultraviolet radiation. Either the water cooled or air cooled lamp at a distance may produce satisfactory results. As pointed out by Hazen and by C. Guy Lane, x-ray and radium skin has a low toleration for such radiation. Therefore, the initial dose should be small. As a rule, it requires from one to several erythema doses or even blistering doses to destroy the capillaries. It is best not to treat with strong doses of ultraviolet rays most cases of radiodermatitis as too vigorous treatment may in some severe cases cause the tissue to ulcerate. It is difficult to obtain the correct amount of vascular destruction. When the treatment is too vigorous, the treated area is likely to be too white and also the atrophy caused by the x-rays or radium becomes more visible.

Miscellaneous Cutaneous Disorders.—Dermatitis Herpetiformis and Pemphigus: There have been numerous reports of good results with general body irradiation with ultraviolet rays in cases of dermatitis herpetiformis and chronic pemphigus. However, others are not convinced that the radiation is of value for the purpose. Evaluation is difficult because these diseases are characterized by exacerbation and remission.

Scleroderma: Ultraviolet radiation has been advocated for scleroderma, both local applications and general body irradiation being used. The results have been very discouraging.

Milia: Ultraviolet rays have been tried in a few cases and have not proved beneficial.

Pityriasis Rosea: Ultraviolet radiation has been found useful for shortening the course of pityriasis rosea. One dose, sufficient to cause erythema and exfoliation, may suffice to clear up the eruption. Apparently it is the exfoliation that effects the cure. It is advisable to avoid too severe an erythema, especially for the first dose in severe cases. It is customary to give a suberythema dose at the first sitting to determine toleration. A few days later a full erythema dose may be given. The natural course of this self-limited disease is from one to three months. Subjective symptoms usually are mild or absent, and the eruption seldom attacks the face or other exposed parts. For these reasons most patients prefer to avoid the discomfort that is likely to be associated with a widespread sunburn. In some cases of pityriasis rosea the eruption is severe; inflammatory and subjective symptoms are annoying, and it is doubtful whether ultraviolet radiation is indicated.

Leukoderma: The literature contains many reports of good results in the treatment of this disease with local applications of erythema doses of ultraviolet rays with and without general body irradiation. The modern dermatologic consensus is that the method is almost, if not completely, useless. As a rule, such treatment is likely to make the areas more conspicuous because the white areas do not tan while the surrounding areas become very dark. Recently, occasional satisfactory results have been obtained by painting the white areas with oil of bergamot and applying ultraviolet radiation in quantities sufficient to evoke erythema.

(To be continued)

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In this issue of THE JOURNAL a colored slip is inserted! Fellows of the A. M. A. and subscribers may use it to remit now. Fellowship dues and subscription are payable in advance. The use of the colored slip at this time will save the Association the expense of postage and clerical effort incurred by sending personal bills to each Fellow and subscriber. The slip, when folded, forms an envelop already addressed and postpaid. Names and subscription prices of all the special journals published by the Association, as well as *Hygeia*, the Health Magazine, are included on the slip. Remittance for any of these other publications may be conveniently included with the amount sent for the annual dues. Those who have already paid will, of course, disregard the colored slip.

PLANNING FOR POSTWAR MEDICAL CARE

Probably few other groups have more interest in the problems concerned in planning for the postwar world than has the medical profession. Many surveys already indicate a general agreement that the provision of optimum health through the widest possible application of the principles of preventive medicine and the treatment of disease and through the best possible distribution of medical services are considered by most of those consulted to be among the first problems to be given consideration. Even satisfactory nutrition for those portions of the world which have already begun starving must in itself depend on medical diagnosis as to the nature of the malnutrition and the means to be followed for nutritional improvement. Few of the suggestions thus far made for constituting suitable agencies for the study and control of postwar problems have indicated the necessity for dependence on sound medical advice and administration. Such proposals as have come have been the fruit of considerations by economists and statesmen. In Great Britain a medical advisory commission for the minister of health has just been established; it includes the leaders of all the recognized national medical organizations together with Lord Dawson of Penn and Sir Thomas Horder, whose positions in relationship to medical care of the royal family are well known. One wonders why so many years elapsed before the minister of health was given such assistance.

The Beveridge report, which has been widely discussed editorially in many newspapers and periodicals in this country, has only recently become available for consideration. Its medical aspects are elucidated in the correspondence from London in this issue of THE JOURNAL. Sir William Beveridge's recommendations are essentially an expansion of Britain's present system of social insurance involving a state paid medical service for all regardless of individual financial status. Medical planning is a function of a special committee of the British Medical Association; the *Lancet* has published a condensation of the report of an independent, anonymous planning group of some two hundred British physicians; separate proposals have also been made in England by the medical communist and other independent agencies. What will come of all these proposals is difficult to conjecture. Presumably all the plans and planning will be tossed into the parliamentary hopper, where any ultimate proposal will have to be subjected to the strainer of the financial considerations. Sir William Beveridge pointed out that his recommendations are concerned "not with increasing the total wealth of the British people but with distributing whatever wealth is available." Great Britain is still operating on deficit finance. As was pointed out by the Pittsburgh *Press*, there is little security in red ink. Wealth has to be created before it can be distributed.

In the United States various agencies have been considering the problems of postwar planning. At a meeting of the Committee on War Participation of the American Medical Association (reported elsewhere in this issue) President-Elect James E. Paullin called attention of the committee to the necessity for participation in planning and urged the establishment of some suitable special agencies in the American Medical Association for this purpose. These matters may well come before the House of Delegates at its next session.

A special committee, including representatives of the Social Security Board, has made a preliminary report to the President, and another committee, appointed by the American Council on Public Affairs, has developed a statement on security as it relates, among other things, to health. These publications have apparently aroused

but little public interest. We in this country are, of course, also concerned with the situation from a financial point of view. As the Pittsburgh *Press* pointed out, the United States government also is operating on deficit finance. "Our public debt has just passed the 100 billion mark. . . . The social security taxes we have paid into the social security fund have been lent to the government and have been spent. . . ."

Various reports emanating from sources in Washington indicate that neither the Senate Committee on Finance nor any of the other agencies which might be concerned with these matters are inclined to expansion of social security legislation at this time. Nevertheless such considerations must come eventually. When they do come, the extent to which the Social Security Act covers the administration of preventive medicine and medical service will be a matter of utmost importance to the medical profession.

Some fundamental concepts should be kept constantly before us. Most important is a realization that conditions in the United States are different from those in any other nation in the world. It would be the height of folly for us to approach this problem with the view that technics established as suitable in other nations would be equally suitable for us. The American democracy differs, even in its essentials, from the other great democracies. Any technic developed for medical service in this country should be adaptable to the maintenance of the American democracy. The nature and quality of medical service in the United States have always differed from those of other nations. The scale of living of the American people has been of a quality far superior to that generally available elsewhere in the world. Obviously any new technics that are developed for wider distribution of medical service should not contemplate a considerable depreciation of quality in order to attain wider distribution.

The platform adopted by the American Medical Association urges the principle of local control with financial aid from state and federal sources as needed to accomplish the objectives that are sought. The soundness of this principle as it relates to the functioning of the American democracy cannot be questioned.

Finally comes the principle of free choice. The very basis of the American democracy is free choice: free choice of the school one attends, the newspaper one reads, the church in which one worships, the store in which one makes one's purchases, the car in which one rides, the bank in which one keeps one's funds, the hospital in which one receives hospital care, the physician and the lawyer whom one consults. Careful reading of the Beveridge plan indicates that such considerations have not seemed particularly to be the concern of those who approach the problems of medical care wholly from a social or economic point of view. Unless medical care is approached primarily from the medical point of view, the result will inevitably be interference with the progress of medical science and depreciation of the quality of medical service.

SELECTIVE SERVICE DEFERMENT OF PHYSICIANS, MEDICAL STUDENTS AND PREMEDICAL STUDENTS

Under the heading of Medicine and the War in this issue of THE JOURNAL appears a bulletin issued by the national headquarters of the Selective Service System to all Selective Service boards. Careful reading will indicate the exact status of physicians, medical students and premedical students at this time in relation to the Selective Service.

The Directing Board of the Procurement and Assignment Service, recognizing the necessity for maintaining a continuous supply of qualified young men for training in medicine, has just adopted the following recommendation:

> In order to reserve for the study of medicine, dentistry and veterinary medicine certain students of superior ability and already partially prepared in their training, who, in the normal course of events, would be inducted by Selective Service for general military service before the proposed Collegiate Training Corps is established, the Directing Board of the Procurement and Assignment Service recommends that accredited medical, dental and veterinary medical schools give consideration to the early acceptance of qualified premedical, predental and preveterinary students for classes to be admitted in the calendar year in 1944, as well as in 1943.
>
> Students so accepted should be clearly qualified and desirable for training in these professional fields. These students, if not in an Army or Navy Reserve Corps, should be recommended for deferment to their Selective Service boards and these recommendations carried to appeal boards if necessary. Such deferments should be only for the limited period until the proposed Collegiate Training Corps becomes operative. Vacancies in these classes after these advance selections should be filled at a later date.

Students who are accepted for medical schools in accordance with these recommendations will be in a favorable position for deferment by the Selective Service System. It will be observed that premedical students in good standing, who have completed one or more years of premedical work, are recommended by the national headquarters of the Selective Service System for deferment by local boards. Acceptance by a medical school, as suggested, should therefore make it possible to secure deferment for well qualified and particularly desirable premedical students irrespective of their year in college. Indication by the medical schools that certain students are acceptable for admission will provide helpful information to the Army and Navy boards which will be responsible for selecting students to be assigned by them for continuance of premedical training in the proposed Collegiate Training Corps.

Current Comment

PHYSICIANS NEEDED AS REPLACEMENTS IN CIVILIAN SERVICE

Every physician may well take pride in the manner in which the medical profession has responded to the nation's call for service. More than one month ahead of schedule the medical profession voluntarily met the procurement objectives (quotas) of the Army and Navy. The response to calls for service continues; through the Procurement and Assignment Service carefully considered scientific planning of future procurement objectives has been formulated. The willingness of physicians to enlist before quotas were established greatly reduced the number of remaining physicians in some areas. Already three hundred and five older physicians have been voluntarily relocated to new areas as a part of their contribution to the war effort. Opportunities still remain for service in critical areas, boom towns and large industrial organizations in the replacement of those physicians who have gone or who are willing to go into the armed forces. Younger physicians, those under 37 years of age who are physically disqualified for the armed services, are urgently needed. Total war means total effort of every individual for victory. Physically disqualified physicians under 37 years of age may be most effective in the war effort by offering their services to the Procurement and Assignment Service. The state committee of the Procurement and Assignment Service in each state will discuss the arrangements and opportunities for this service with those who volunteer.

MEDICAL SOCIETY HONORS CITIZENS

A novel method for interesting the public in health matters has been developed by the Lake County (Ind.) Medical Society.[1] It has established an award which bears the name of the late Dr. Thomas Oberlin of Hammond, Ind., a charter member of the Lake County Medical Society and for forty-three years a leader in Lake County medical circles. Dr. and Mrs. Oberlin were killed in an automobile accident in March 1941. Four citizens of Lake County were selected by the Lake County Medical Society to receive the Oberlin award. Each of these received a handsome silver plaque in recognition of distinguished service for public health. The four citizens selected for this honor on the first occasion of its award included the editor of the Gary *Post-Tribune* and the editor of the Hammond *Times*. Each newspaper was cited for its "individual and always uncompensated contributions . . . to the health of the people of Lake County." These contributions, according to the committee on awards, were "impossible to list because the history of these contributions is as long as the history of these great institutions." Another award was given to the president of the Lake County council for his work in combating tuberculosis as president of the Lake County Tuberculosis Association since 1936. A posthumous award to a prominent industrialist was given in recognition of his services as "a dynamic force in the interest of the health and welfare of the people of this (Lake) county." The establishment of this award recognizes the joint interest of medical and lay groups in public health. The choice of an industrialist, a voluntary health worker and two newspaper editors for the first award is a recognition of the value of community cooperation. Such projects as this and county accreditation, an individual award system established in Minnesota for the control of tuberculosis,[2] typify public health progress in the American spirit with local initiative and community cooperation pacing progress.

1. Medics Honor Four with Health Award, Gary Post-Tribune, Dec. 11, 1942.

MEDICAL JOURNALS AND MEDICAL PROGRESS

Evaluation of the periodical literature of medicine is difficult. Casey [1] has presented an evaluation of the medical periodical literature by means which he believes to be unique and which apparently allow satisfactorily for important variables. The study reported is based on the number of references to British and American periodicals during the first three months of 1934 in the American and British medical literature. First in this list is THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, followed in the second, third and fourth positions by the *Journal of Biological Chemistry*, the *Journal of the American Chemical Society* and the *American Journal of Physiology* respectively. The *Lancet* and the *British Medical Journal* appear in the tenth and eleventh positions. As Casey points out, the hundred journals tabulated were exerting in 1934 the greatest influence on general medical progress, although this influence could have been good, bad or indifferent. Of considerable interest is the evidence that periodicals in the fields of physiology, chemistry and mathematics were then (and are now according to a recent recheck) playing a large part in current medical progress.

UNSCIENTIFIC SCIENCE SERVICE

In a bulletin issued by Science Service, Washington, D. C., published Dec. 18, 1942 in *Science* magazine, appear the following two paragraphs:

> A hint that the shortage of doctors is already affecting the national health picture may be found in the death rate for eighty-eight large cities. For the week ending December 5, the latest on which figures are available, this took a big jump, to 13.5 per 1,000, although there are no signs of epidemics. . . .
>
> With no epidemic and no reports so far of a more virulent type of pneumonia or influenza, the only suggested explanation for the increased death rate is lack of medical care resulting from the shortage of physicians.

The inference based on the evidence available discredits the use of even the word science in the service that takes the responsibility for such statements. Observe that figures for one week only are concerned and this without relationship to any evaluation of the usual increased prevalence of respiratory and infectious diseases at this season; the movement of great numbers of people; the changing virulence of disease, and innumerable other factors.

2. County "Accreditation"—A New Deal in Human Tuberculosis Control, Current Comment, J. A. M. A. **120:** 128 (Sept. 12) 1942.

1. Casey, Albert E.: Influence of Individual North American and British Journals on Medical Progress in the United States and Britain, Bull. M. Library A. **30:** 464 (Oct.) 1942.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war and such other information and announcements as will be useful to the medical profession.

SELECTIVE SERVICE BULLETIN ON PHYSICIANS, DENTISTS, VETERINARIANS, OSTEOPATHS, STUDENTS AND PREPROFESSIONAL STUDENTS

The following bulletin has been circulated under date of Dec. 14, 1942 by the national headquarters of the Selective Service System to all secretaries of service boards:

1. *Persons Qualified.*—There are certain persons trained, qualified or skilled in the practice of medicine, dentistry, veterinary medicine and osteopathy who, if engaged in the practice of their respective professions, are in a position to perform vital service in activities essential to war production and to the support of the war effort and in activities the maintenance of which is necessary to the health, safety and welfare of the nation.

2. *Critical Occupations.*—The War Manpower Commission has certified that in the practice of medicine, dentistry, veterinary medicine and osteopathy, and in training and preparation therefor, there are critical occupations which, for the proper discharge of the duties involved, require a high degree of training, qualification or skill. In the accompanying tabulation is a list of "critical occupations" in medicine, dentistry, veterinary medicine, and osteopathy.

3. *Consideration of Occupational Classification.*—The War Manpower Commission has certified that there are serious shortages of persons trained, qualified or skilled to engage in these critical occupations. Accordingly, careful consideration for occupational classification should be given to all persons trained, qualified or skilled in these critical occupations and engaged in activities essential to the health, safety and welfare necessary to war production and essential to the support of the war effort, and persons in training and preparation therefor.

4. *Students in Preprofessional Training.*—A registrant who is in training and preparation as a premedical, predental, preveterinarian or preosteopathic student, pursuing courses in liberal arts or sciences in a recognized university or college, may be considered for occupational deferment after completion of his first academic year in such preprofessional course, and thereafter if he is a full time student in good standing, if he continues to maintain good standing in such course of study and if it is certified by the institution that he is competent and that he gives promise of successful completion of such course of study and acquiring the necessary degree of training, qualification or skill.

5. *Students in Professional Schools.*—A registrant who is in training and preparation as a medical, dental, veterinary or osteopathic student in a recognized medical school, dental school, school of veterinary medicine or school of osteopathy shall be considered for occupational classification during the period of such professional course, provided he is a full time student in good standing, he continues to maintain good standing in such course of study and if it is certified by the institution that he is competent and that he gives promise of the successful completion of such course of study and acquiring the necessary degree of training, qualification or skill to become a recognized medical doctor, dentist, doctor of veterinary medicine or osteopath.

6. *Interns.*—A registrant who has completed his preprofessional and professional training and preparation as a medical doctor, dentist or osteopath, and who is undertaking further studies in a hospital, institution or dental clinic giving a recognized internship, shall be considered for occupational classification so long as he continues the internship but for a period not to exceed one complete year.

7. *Opportunity to Engage in Profession.*—When a registrant has completed his training and preparation in a recognized college or university, or in a recognized hospital, institution or dental clinic, and has acquired the high degree of training, qualification or skill in one of these professional fields, such registrant should then be given the opportunity to become engaged in the practice of his profession in the armed forces, or in a civilian activity necessary to the public health, safety or welfare necessary to war production, or essential to the support of the war effort. In many instances following graduation from a recognized college or university, or the completion of an internship, a certain period of time will be required in the placing of such persons in an essential activity. When a registrant has been deferred as a necessary man in order to complete his training and preparation, it is only logical that his deferment should continue until he has had an opportunity to put his professional training and skill to use in the best interest of the nation. Accordingly, following graduation in any of these professional fields or following an internship, a registrant should be considered for further occupational classification for a period of not to exceed sixty days in order that he may have an opportunity to engage in a critical occupation of his profession in the armed forces, war production, support of the war effort, or in an activity essential to civilian health, safety or welfare, provided that during such period the registrant is making an honest and diligent effort to become so engaged.

Critical Occupations: Medical, Dental, Veterinary and Osteopathic

Preprofessional student after completion of his first academic year in such preprofessional course:
- Premedical
- Predental
- Preveterinary
- Preosteopathic

Professional students during full professional course following completion of preprofessional course:
- Medical
- Dental
- Veterinary
- Osteopathic

Intern in hospital, institution or dental clinic, giving recognized internship following completion of professional studies:
- Medical interns
- Dental interns
- Osteopathic interns

Persons engaged in practice of their respective professions:
- Medical doctors
- Dentists
- Doctors of veterinary medicine (engaged in care of animals raised and maintained for work or food or in the inspection of meat food products)
- Osteopaths

8. *Deferment Permitted Whether or Not Commission is Pending.*—The official statement of any recognized premedical, predental, preveterinary or preosteopathic college or university, the official statement of any recognized medical, dental, veterinary or osteopathic college or university, or the official statement of any hospital, institution or dental clinic giving a recognized internship, showing that a registrant satisfied the requirements of this bulletin, shall be sufficient for the consideration of such registrant for occupational classification on occupational grounds solely. Registrants will be considered for

occupational classification as prescribed in this bulletin without regard for the fact that a commission in the armed forces may be granted to him or is pending.

9. *Procurement and Assignment Service.*—In order that every doctor, dentist or veterinarian may render the greatest professional service to the nation, the President has created the Procurement and Assignment Service for the purpose of gathering information with respect to the supply of qualified medical doctors, dentists and doctors of veterinary medicine. To work with headquarters of the Procurement and Assignment Service, there have been appointed for each state and the District of Columbia a state chairman for medical doctors, a state chairman for dentists and a state chairman for doctors of veterinary medicine. When considering the classification of any registrant who is a medical doctor, dentist or doctor of veterinary medicine, the director of Selective Service desires that local boards, through the state director, shall consult with the respective state chairman of the Procurement and Assignment Service.

10. *List of State Chairmen.*—Names and addresses of the respective state chairmen of the Procurement and Assignment Service will be provided to state directors from time to time.

11. *Effective Period of This Bulletin.*—This bulletin is effective until July 1, 1943, unless sooner amended. During the effective period of this bulletin the War Manpower Commission is giving further study to the training and preparation and utilization of persons trained in these professional fields.

LEWIS B. HERSHEY, DIRECTOR.

WAR PARTICIPATION COMMITTEE

A meeting of the War Participation Committee of the American Medical Association was held on Dec. 14, 1942 at the Mayflower Hotel, Washington, D. C. Those present included the following members of the committee: Walter F. Donaldson, chairman, William R. Molony Sr., Roger I. Lee, John H. O'Shea, Edward R. Cunniffe, Clyde L. Cummer, James E. Paullin, Olin West, Morris Fishbein and Ernest E. Irons. Others present were R. L. Sensenich, Harvey B. Stone, Harold S. Diehl, Thomas A. Hendricks, Frank H. Lahey, Thomas Parran, Warren F. Draper, J. W. Mountin, C. E. Rice, George Baehr, Maxwell E. Lapham, Mary Switzer, Gerald D. Timmons, William N. Hodgkin, George Anderson, Harold Hertford and Russell A. Sands.

Comdr. Max Lapham stated that there were forty or fifty critical areas which were now being studied by the Procurement and Assignment Service for Physicians, Dentists and Veterinarians. Information concerning such areas comes from a wide variety of sources, including governmental agencies, senators, congressmen, the Federal Housing Commission and medical organizations. A number of physicians have been relocated in some critical areas. The Procurement and Assignment Service was able to retain six physicians from going into military service from Mobile, Ala., since there had been too many withdrawn from that area. Attention was called to the importance of study and revision of licensure laws in order to minimize the difficulties of relocation.

Dr. Frank Lahey pointed out that meetings were being planned in the various corps areas of representatives of the Procurement and Assignment Service, the medical profession and the United States Public Health Service to discuss this problem.

Dr. Thomas Parran stated that there was need for additional personnel in the field of public health. At present the need includes 276 physicians, 650 nurses, 450 sanitarians and 250 laboratory technicians. An agreement had been reached between the Procurement and Assignment Service and the United States Public Health Service, and a memorandum had been sent to the district directors of the United States Public Health Service, under the title "Operating Policy on Matters Relating to Shortages of Medical and Allied Personnel, Relationships with Corps Area and State Procurement and Assignment Officials, and Functions of the Division of States Relations, United States Public Health Service, in this field," as follows:

"1. The U. S. Public Health Service and the Procurement and Assignment Service will jointly undertake studies of war industry and extracantonment areas from which shortages of medical and allied professional personnel are reported.

"(*a*) These studies shall be made jointly by the appropriate corps area chairman of the Procurement and Assignment Service, state medical and dental chairman of the Procurement and Assignment Service and representatives of the U. S. Public Health Service, either the district director or some one detailed by the district director or by the Surgeon General.

"(*b*) District directors of the U. S. Public Health Service should take the initiative in contacting state and corps area chairmen of the Procurement and Assignment Service in seeking to arrange for such studies. The Procurement and Assignment Service will take the same initiative if information concerning a critical area comes to its attention first.

"(*c*) When recommendations are being considered for any area, it should be kept in mind that the ratio of 1 active physician to 3,000 people is considered by the Procurement and Assignment Service and the U. S. Public Health Service as the minimum compatible with war health standards of the civilian population.

"(*d*) The findings and proposed recommendations of the survey group should be discussed with a representative group of citizens of the area involved before the report is submitted to Washington.

"(*e*) Recommendations will not always concern additional physicians or dentists but may deal with the possibilities of spreading the services of physicians already in the community by making available some type of auxiliary services such as hospital facilities, nursing services and medical offices and equipment. In other instances the need may be for the expansion of public health facilities.

"(*f*) Reports of joint studies shall be submitted to the central office of the Procurement and Assignment Service and to the Surgeon General simultaneously and should be signed by the representatives of the Procurement and Assignment Service and the U. S. Public Health Service making the survey. If representatives making the joint report cannot reconcile differences of opinion regarding the recommendations made, these differences should be indicated in the report. Recommendations should be specific and not general as to the plan for meeting the need, including the number of physicians, dentists, auxiliary personnel and facilities.

"2. Many situations where shortages exist can be met through local effort by the relocation of physicians living within the state. It is in areas to which physicians must be transplanted from other states that federal assistance most often will be needed.

"3. Licensure for doctors moving interstate will be a difficult problem in some states. However, conferences with the Procurement and Assignment Service and state licensing boards may provide means by which out of state physicians may be granted temporary permits to practice medicine in shortage areas for the duration of the emergency.

"4. The general counsel's office in an opinion dated July 28, 1942 states that under the authority of title VI, Social Security Act, the U. S. Public Health Service may detail its personnel to a state to render medical services, 'provided the public agency to which these officers are detailed has authority under the law of that state to . . . engage in the activities contemplated therein.' This arrangement should be used in areas where other means of giving medical care cannot be arranged.

"5. The U. S. Public Health Service usually cooperates with state health departments; therefore the question will arise, in considering the detail of personnel to 'cooperate with and assist the state' by rendering medical services in war industry and extracantonment areas, whether the state health department has the authority to engage in this type of activity. The general counsel's office is of the opinion that most state statutes fail to indicate either positively or negatively what the state health department's responsibility is with regard to this subject. Hence it may be necessary for the state health officer to make an administrative decision concerning this point.

"6. On recommendation of the state health officer and with the approval of the district director after consultation with the state chairman of the Procurement and Assignment Service, personnel now assigned to state health departments under emergency health and sanitation may be assigned to render medical services in areas where shortage exists. In making such assignments district directors will review the total needs in their respective districts and attempt to meet the most urgent ones.

"7. When doing reconnaissance surveys of war industry and extracantonment areas on your own, district directors will concern themselves, as in the past, with shortages in such areas of medical and allied personnel.

"8. The Community Medical and Dental Service Section has been established in the States Relations Division to serve:

"(*a*) In a liaison capacity between the U. S. Public Health Service and the Procurement and Assignment board concerning medical care problems in war industry and extracantonment areas.

"(*b*) In an advisory capacity to district directors concerning local plans for providing and utilizing physicians and allied personnel to render medical care.

"(*c*) As a coordinating office with respect to the various medical care interests of the service, other than those dealing with established beneficiaries.

"Senior Surg. Carl E. Rice is in charge of the Community Medical and Dental Service Section. Asst. Surg. J. M. Chisolm and Health Administration Specialist Irma M. Ringe are also attached to this section.

"9. The Community Medical and Dental Service Section should be kept currently advised concerning plans that are being devised and actions taken to alleviate medical care shortages. Such plans may represent the joint efforts of local medical societies, public health departments, hospitals, visiting nursing associations, councils of social agencies and others.

"10. The Budget Bureau will consider making special allocations from the President's Emergency Fund for particular areas of need."

There was discussion as to the safe minimum ratio of physicians to population; it was agreed to give further consideration to the statement referring to a ratio of 1 physician to 3,000 population. It was also proposed that a representative of the state medical society be added to the group which would recommend assignment of personnel from state health departments to medical service in areas where shortages exist.

Dr. Frank Lahey called attention to an action of the Procurement and Assignment Service requesting medical periodicals to publish a call for physicians who would be willing to be relocated for the period of the emergency. Dr. Harold Diehl reported a compilation of the status of interns and residents at present in hospitals in relation to military service so that the names of those found physically disqualified could be sent to the state chairmen of the Procurement and Assignment Service as men possibly available for location in depleted areas. It has been estimated that about one third of the entire group of interns and residents are women and men who are physically unfit for service with the armed forces.

A discussion followed which was concerned with the extent of the authority of the War Manpower Commission in assigning physicians for various agencies and purposes.

Dr. John O'Shea presented a statement of the situation in the state of Washington, particularly in the city of Vancouver. In this area, which houses the Kaiser shipyards, there were normally 2,000 people with 20,000 people in the county and from 90 to 100 doctors. It has been estimated that in July 1943 the city will have 157,000 people with 12,000 new homes. The Kaiser company has 19 physicians in its hospital. Bremerton, which is a navy yard city, had 23 physicians. There were 22,000 people and there are now 90,000 people. In Portland the problem is handled by the Portland Medical Service Bureau. In the plant, which is 16 miles from the city of Portland, —— men are employed. These are the three major problems in the Northwest.

Dr. William R. Molony described the situation in California, stating that the California Physicians Service had been working on the problem in Loma Linda and Wilmington. Some 6,000 physicians are associated with the California Physicians Service. Special problems were developed in relation to the housing projects in Marin County and Vallejo.

At the Lockheed-Vega plant, which has some —— employees and which is employing some —— new employees each day (mostly women), all employees are examined beforehand and 12 physicians are required who do nothing except make examinations before employment. The shipbuilding yard did not require such examinations because the unions do not agree to have men examined before employment.

Special consideration was given to the problem of the total number of physicians to be supplied to the armed forces by the state of California. Dr. John O'Shea pointed out that there had been competition between the Kaiser and Boeing plants for physicians, salaries rising from $300 a month to $450 a month. He also gave the figures as to the number of physicians taken from the various large cities of the state of Washington.

LICENSURE OF PHYSICIANS

Special consideration was given to the problem of licensure of physicians and the possibility of temporary licensure for the period of the emergency. A question was raised as to the effect of such temporary licensure on the basic science laws prevailing in many states.

Dr. Morris Fishbein pointed out that it would be impossible to control movements of physicians wholly by the effects of publicity regarding the need for men in various areas. He thought it desirable that the War Manpower Commission establish as soon as possible the extent of its authority in controlling the movements of members of the medical profession during the period of the emergency. Dr. Roger I. Lee suggested that there are many social factors involved related to the relocation of a physician at any time and that economic factors also play a large part.

Special consideration also was given to the problem of the refugee doctor. One of the purposes of the temporary licensure procedure was to place some of the well qualified refugee physicians in areas where physicians are greatly needed. Dr. Edward R. Cunniffe stated that there were perhaps 1,000 such refugees available in New York State for transplantation. Dr. Fishbein suggested that inquiry be made in the individual states to determine whether or not such refugees would be acceptable for service in areas in which shortages prevail.

Dr. Fishbein requested that inquiry be made of the War Manpower Commission to state definitely its jurisdiction over members of the medical profession in various circumstances. For instance, What jurisdiction do they have over men in the draft age which includes interns and residents who are physically disqualified? What jurisdiction over alien physicians? What jurisdiction over physicians above draft age who may wish to be relocated, and what jurisdiction over physicians in full time salaried positions and industries? It was suggested that the Procurement and Assignment Service undertake to obtain such a statement.

A subcommittee which had been appointed to develop a procedure for determining needs of physicians in war industry and extracantonment areas made the following report:

"The Public Health Service and the Procurement and Assignment Service will jointly undertake studies of war industry and extracantonment areas from which shortages of medical and allied professional personnel are reported.

"(*a*) These studies shall be made jointly by the appropriate Corps Area Chairman of the Procurement and Assignment Service, state medical and dental chairmen of the Procurement and Assignment Service and representatives of the U. S. Public Health Service, either the district director or some one detailed by the district director or by the Surgeon General.

"Also the state medical society and the state health department each will be invited to designate a representative to participate in such studies."

PROVISION FOR PREMEDICAL AND MEDICAL STUDENTS

Dr. Harold Diehl presented a statement concerning provisions for premedical and medical students and the manner in which classes could be maintained during the period of 1943 and 1944. It was pointed out that official memorandums on these subjects would shortly be issued by the Army and Navy and by the War Manpower Commission and the Selective Service System.

AFTERNOON SESSION

At a meeting of the War Participation Committee Dr. James Paullin and Dr. Ernest E. Irons presented a plan for cooperation of the American Medical Association with the American College of Physicians and the American College of Surgeons in organizing groups of physicians who could be sent to camp hospitals in various portions of the United States to aid in ward rounds, conducting clinics, round tables, lectures and other technics for instruction and graduate education of the physicians in the armed forces. It was pointed out that the annual sessions of these organizations are not to be held during the duration of the war period and that it would be desirable to develop an agency for the extension of medical information to those men

who are largely out of touch with general medical activities. The College of Physicians had made an appropriation to finance a part of the program, and it was felt that the other organizations concerned could also participate. Dr. Olin West stated that the proposal had already come before the Council on Scientific Assembly of the American Medical Association and that a special report was to be prepared for its consideration. Dr. Irons explained the methods by which the teams and their participation in the effort would be organized.

Dr. Moloney suggested the possibility of utilizing the traveling groups also for extension to civilian physicians. It was proposed that Commander Bortz of the Navy be asked to undertake the organization of this service.

POSTWAR PLANNING

Dr. James Paullin called attention to the need of organization of medical services in relationship to postwar planning for medical care throughout the world and the necessity for integrating the efforts of all the various agencies engaged in such problems. Consideration was given to the Beveridge report and to other postwar plans that have been called to the attention of the public.

TEMPORARY LICENSURE

The Committee on War Participation also discussed at some length the necessity for temporary licensure and the proposals of the Federation of State Medical Boards and the Procurement and Assignment Service in this regard.

STATE PARTICIPATION IN PROVISION OF MEDICAL CARE

It was recommended by the War Participation Committee that state medical societies cooperate with the state Procurement and Assignment Service and with the state boards of registration and licensure in determining areas in districts that lack medical service and in plans for providing medical service in such areas when the need arises. The Secretary of the American Medical Association, Dr. Olin West, was requested to inform the secretaries of all the state medical associations of the action taken.

STATE COMMITTEES ON WAR PARTICIPATION

It was also recommended that each state medical society develop a state committee on war participation to cooperate in such activities.

ARMY

DR. EVARTS GRAHAM INSTRUCTS ARMY OFFICERS IN SURGERY

The Department of Surgery of Washington University School of Medicine, St. Louis, under the direction of Dr. Evarts A. Graham, has arranged for short, intensive postgraduate courses in the specialties of surgery for selected groups of U. S. Army officers. The first group of forty officers arrived November 8 for a six weeks course, which will include instructions in a number of the different departments of the medical school. In the first group of student officers were two alumni of Washington University School of Medicine, Lieut. Col. Robert M. Moore '26, and Lieut. Col. Walter Matuska '31.

PROFESSIONAL USE OF NARCOTICS BY MEDICAL OFFICERS

New regulations have recently been issued jointly by the U. S. Commissioner of Narcotics and the Commissioner of Internal Revenue outlining the conditions under which officers of the Medical Corps of the Army and Navy may prescribe narcotic drugs. (7 *Federal Register* 10770, Dec. 23, 1942). These regulations provide that such officers, in the course of official medical treatment of Army and Navy personnel and members of their families entitled to receive such treatment, will be required to issue prescriptions for these patients which may call for narcotic drugs or preparations. Where the drug or preparation cannot be furnished from official stock, it must be obtained, pursuant to the official prescription, from a drug store duly qualified by registration under the Harrison Narcotic Act to fill narcotic prescriptions. Such prescriptions, issued in the course of official professional practice only, and prepared on official blanks or stationery, such as printed forms of an Army or Navy hospital or dispensary, and otherwise meeting the requirements of narcotic regulations relating to prescriptions, may be filled by a duly registered druggist although they do not bear a registry number of the issuing practitioner. These prescriptions, however, must bear the signature, title, corps and serial or jacket number of the issuing medical officer and must be filed with and retained for the same period as narcotic prescriptions issued by regularly registered practitioners and filled by the druggist.

The foregoing procedure will not apply to prescriptions written by an Army or Navy medical officer in the treatment of a private patient, that is, a patient not entitled to receive medical treatment from the physician in the latter's capacity as a service medical officer. In prescribing and dispensing narcotic drugs to such private patients, the medical officer is subject to all the requirements of the Harrison Narcotic Act, including registration and payment of taxes, as are imposed on other physicians conducting private medical practice.

SYMPOSIUM ON EPIDEMIC KERATOCONJUNCTIVITIS

A symposium on epidemic keratoconjunctivitis was held at Columbia University College of Physicians and Surgeons, New York, December 4, under the direction of the U. S. Army Surgeon General's Office and in conjunction with the Commission of Neurotropic Virus Diseases and the Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army. Dr. John H. Dunnington, director of the Institute of Ophthalmology of the Presbyterian Hospital, New York, spoke on "History of the Disease from the Hawaiian Outbreak to the Present Time"; Dr. Murray Sanders of the Commission on Neurotropic Virus Diseases, "The Clinical Picture, Epidemiological Data, Recommendations"; Dr. Alson E. Braley, assistant professor of ophthalmology at the New York Postgraduate Medical School and Hospital, Columbia University, New York, "Differential Diagnosis"; Dr. James E. Perkins, director of the New York State Department of Health, "Additional Epidemiological Observations (the Schenectady Epidemic)"; Dr. John R. Paul, chairman of the Commission on Neurotropic Virus Diseases, "Role of the Virus Commission in the Problem." Opening remarks were presented by Col. James S. Simmons and the discussion was opened by Lieut. Col. A. J. Lanza, both of the Surgeon General's Office. Following luncheon, clinical cases were presented and various phases of laboratory work used in the diagnosis and treatment of epidemic keratoconjunctivitis were demonstrated.

TO DISCONTINUE OFFICER CANDIDATE SCHOOL AT CARLISLE BARRACKS

With the graduation of the eleventh class from the officer candidate course at the Medical Field Service School, Carlisle Barracks, Pa., on December 23, the work of gradually discontinuing the Officer Candidate School at that post began and will end on March 1. To offset the eventual closing of the medical administrative Officer Candidate School, the number of medical department officers to be trained for field duty beginning New Year's will be steadily increased.

Two hundred and forty-eight enlisted men became second lieutenants in the Medical Administrative Corps at the graduation exercises on December 23 and have already been assigned to administrative duties so that medical officers can be relieved of such duties. The diplomas and commissions were presented by Brig. Gen. Addison D. Davis, commandant of the school, and the oath of office was administered by Lieut. Col. Thomas G. Hester, adjutant of the Army Medical Center, Washington, D. C., himself a senior officer in the Medical Administrative Corps.

BRAZILIAN MEDICAL OBSERVERS

Two medical observers from the Brazilian army recently arrived at the U. S. Army Medical Field Service School, Carlisle Barracks, Pa., for a few days visit. Lieut. Col. E. Marques Porto and Capt. Carlos Paiva Goncalves, with the approval of the War Department, were assigned to Carlisle Barracks for seven days. This observation tour follows closely the visit of Gen. Joao Afonso de Souza Ferreira, the Brazilian surgeon general, and of Capt. Abelardo Lobo, who last year graduated from the Medical Field Service School at Carlisle Barracks. Colonel Porto likewise had visited Carlisle Barracks previously, as he was a delegate to the International Congress of Military Surgery in 1939.

STRENUOUS TRAINING

Without previous army experience, a professional group comprising doctors of medicine and dentistry graduated on Dec. 12, 1942 following an intensive six weeks course at the Officers Training School at Miami Beach, Fla. About 40 per cent of the academic part of the doctors' training consisted in fitting them for work with combat units, including courses in aviation medicine, tropical medicine and field surgery. The doctors and dentists followed a twelve hour day period of training, including two strenuous hours of physical training and one hour of drill. Major Sidney Davison, assistant director of training in the medical section, said that most of the new officers had come through the strenuous program in "fine style."

CIVILIAN DEFENSE

NEW COURSES FOR GAS SPECIALISTS

A new five day gas specialist course for persons responsible for the organization of gas defense in the target areas was presented in the six War Department civilian protection schools conducted on behalf of and in collaboration with the U. S. Office of Civilian Defense. This is the first course to be presented in cooperation with the Chemical Warfare Service for state gas consultants and senior gas officers, who are responsible for the organization of community gas defense. Courses have been presented at regional schools for medical school representatives, who have in turn been responsible for the education of practicing physicians in the medical aspects of chemical warfare. These schools have been conducted in the East, and plans are under way for the presentation of such schools elsewhere in the United States.

The first session of the gas specialists' course was at Amherst College, Amherst, Mass., November 29 through December 4. The course was offered December 13-18 inclusive at the other War Department civilian protection schools at Loyola University, New Orleans; Purdue University, Lafayette, Ind.; University of Washington, Seattle; Stanford University, Palo Alto, Calif., and Occidental College, Los Angeles.

Presentation of the specialized course dealing with gas defense is part of a new plan of instruction in the War Department civilian protection schools. The ten day general course formerly given by the schools was discontinued with the session of November 1 to November 11. The other courses cover plant protection, basic civilian protection and instruction for staff members.

The gas specialists' course placed emphasis on the administrative organization of state and local gas defense programs and the training of civilian protection personnel, and the interrelated activities of all units of the U. S. Citizens Defense Corps at the time of a gas attack. It was an advanced course open to those with college degrees in chemical, sanitary or civil engineering, chemistry or equivalent scientific training.

BLOOD PLASMA FOR CIVILIAN DEFENSE

The Medical Division of the Office of Civilian Defense and the United States Public Health Service reported on Dec. 8, 1942 the current status of the blood plasma program which was initiated early last spring.

The report indicates that 130 hospitals have now received grants in aid and are preparing reserves of plasma to total at least 63,130 units. In addition to this reserve, 27,500 units of frozen plasma have been obtained through the Army and Navy from blood collected by the American Red Cross. This supply has been distributed. The Medical Division has also procured 37,500 units of dried plasma from blood collected by the American Red Cross, and this supply is in process of distribution.

The total reserve, which is largely concentrated in the 300 mile coastal target areas, will be 126,630 units for treatment of casualties resulting from enemy action. In addition, 1,250 units are in Puerto Rico and 250 in Alaska.

In addition to these sources of plasma, the Red Cross is distributing to target areas 5,000 units which will be available to the Office of Civilian Defense for treatment of civilian casualties resulting from enemy action. Many hospitals which have not received grants under the program are also preparing plasma reserves which total approximately 50,000 units.

Plasma required for the treatment of war related injuries may be obtained by any community through its chief of Emergency Medical Service. To meet such emergencies, plasma may be transferred (1) within a state by the state chief of Emergency Medical Service, (2) within a region by the regional medical officer and (3) from one region to another by the Medical Division, U. S. Office of Civilian Defense.

MISCELLANEOUS

NEW SPONGE RUBBER SUBSTITUTE

A new sponge rubber substitute made of linoleic acid, a derivative of vegetable oils, was developed in the Research Laboratories of Bauer and Black (Division of the Kendall Company), Chicago, by Drs. H. M. Strong and Marguerite Naps during the course of investigations with vegetable oil derivatives in cooperation with the Northern Regional Laboratories, U. S. Department of Agriculture at Peoria, Ill. It is believed that the process does not require anything new in the way of equipment, and plant facilities and the materials involved are at present available. The sponge product can be made in any thickness and in varying densities, and in many respects the properties of the new substitute are so close to those of rubber that they appear identical. Both the product and the process are being made available to the government for war uses for the duration, and information can be obtained through the Rubber Reserve Section. The company reserves for after the war the commercial rights which may be obtained through patents.

RELIEF WINGS INCORPORATED

This nonprofit organization, with headquarters at Airlines Terminal Building (suite 408), 80 East 42d Street, New York City, has now available an especially equipped single motored air ambulance for either disaster service or individual emergencies. The organization has enrolled ten flight surgeons and thirty flight nurses for call in New York City for air ambulance relief. Flight nurses and flight surgeons are available also in Boston, New Orleans, Chicago, Albuquerque, N. M., Kansas City, Mo., and Tampa, Fla. Relief Wings' coordinators in eleven sections of the United States have made available to civil air patrol groups sample stretchers, which will fit in any one of five large single motored airplanes, and medical aid ambulance supply kits are being distributed as the organization's budget permits. Thus there is available in the East, at present without specific charges for use of the plane, an air ambulance for patients who may need to be removed to hospitals or to other parts of the country. Relief Wings, Inc., hopes, however, that donations will be made to the organization, when air ambu-

lance service is needed, which would be commensurate with the actual cost of the flight operation.

The treasurer of Relief Wings, Inc., is Mr. J. Hibberd Taylor, and the chairman of the organization's Aero Medical Research Committee is Dr. Harry V. Spaulding. This organization was started in May 1940 and is now laying plans for a widespread program of humanitarian air service.

Among the sponsors, officers, sectional leaders and advisory committees of Relief Wings, Inc., are nationally known citizens, aviators and scientists. The well known aviatrix Miss Ruth Nichols is the executive director.

TOTAQUINE DOSAGE

According to the *Oil, Paint and Drug Reporter* of Dec. 21, 1942 the Food and Drug Administration believes that manufacturers or distributors of totaquine antimalarial remedies should inform consumers how long the contents of the package will last in the treatment of malaria—whether for the full seven day period or for some shorter period. Proper treatment of malaria with totaquine calls for doses of 30 grains daily for seven days, FDA says.

The administration admits that it is without authority to force such a step but, for reasons of economy in view of the shortages of cinchona alkaloids, considers it a matter that should be given serious consideration by the marketers of the product. For patients to take the remedy only to find that the doses were not sufficiently strong to effect the cure would only be wasting the product. Thus far manufacturers have indicated a willingness to go along on the idea, although some are a little dubious about how it might affect sales in the South, where the people have been used to buying quinine in small quantities.

DENTAL EQUIPMENT FOR COAST GUARD STATIONS

The Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York City, shipped on Dec. 21, 1942 four cases of portable dental equipment to be used in coast guard stations on the west coast of the United States. The shipment included four foot-operated drills to be used on shipboard and in areas without electricity, and dental instruments and material sufficient to set up four complete mobile dental units. The equipment was selected by Lieut. J. T. Reece, who, the committee says, is serving with the U. S. Coast Guard.

MEDICAL AND SURGICAL RELIEF COMMITTEE OF AMERICA

The Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York, received on December 17 approximately 5,000 pounds of surgical instruments rescued from the scrap metal heap, which were donated by Dr. Walter L. Bierring, state health commissioner of Iowa, when it was learned that many of the instruments contributed to the recent Iowa scrap metal campaign were in good condition and would more effectively serve the war effort if reconditioned and made available to the various organizations which call on the committee for help. After the necessary repairs have been made, the instruments will be placed in emergency medical field sets for distribution to the U. S. Coast Guard and to first aid posts, needy hospitals and other recognized relief agencies in the United States and Alaska. The idea of salvaging the instruments for reconditioning came from Harry A. Hurd, D.D.S., Des Moines, who acted as chairman of the Dental Salvage Committee of the Des Moines District Dental Society in the government's scrap metal campaign. Shortly after the start of the dental drive, a campaign for scrap was also directed to physicians under the leadership of Dr. Robert L. Parker, Des Moines, chairman of the Iowa State Medical Society. Contributions were made by 854 persons representing 273 cities and towns in Iowa and 11 other states, including Arkansas, Colorado, Kansas, Montana, Minnesota, Nebraska, New Mexico, Oklahoma, South Dakota, West Virginia and Wyoming. The joint drive was immediately successful, but it was soon apparent that many of the instruments were too good for scrap. In addition to the instruments which will be reconditioned, it yielded approximately 1,000 pounds of scrap.

COMMITTEE ON SANITARY ENGINEERING CREATED BY THE NATIONAL RESEARCH COUNCIL

A sanitary engineering committee has been organized, at the request of the Surgeon General of the Army, by the National Research Council through the Division of Medical Sciences acting for the Committee on Medical Research of the Office of Scientific Research and Development. Through liaison officers, advice and assistance on sanitary engineering problems are also furnished to the Navy and the Public Health Service.

As epidemiologic and entomologic advice was deemed necessary, personnel representing these sciences was included. Close liaison with the Surgeon General's Office is maintained through the Sanitary Engineering Branch of the Division of Preventive Medicine. The committee consists of:

Abel Wolman, chairman, professor of sanitary engineering, John Hopkins University, Baltimore.
Kenneth D. Maxey, secretary, professor of epidemiology, School of Hygiene and Public Health, 615 North Wolfe Street, Baltimore.
Harold E. Babbitt, professor of sanitary engineering, University of Illinois, Urbana.
F. C. Bishopp, assistant chief, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Washington, D. C.
V. M. Ehlers, chief engineer, Texas State Board of Health, Austin.
Gordon M. Fair, professor of sanitary engineering, Harvard University, Cambridge, Mass.
H. A. Whittaker, chief engineer, division of sanitation, State Department of Health, Minneapolis.

In the several meetings to date, the committee has devoted major efforts to the problem of procurement and training of the large number of sanitary engineering personnel required for essential war activities. In addition to the needs for sanitary engineers as commissioned officers in the Sanitary Corps of the Army, the U. S. Public Health Service and the Corps of Engineers utilize sanitary engineers on a civil service status.

The committee has also considered the sanitary engineering functions performed by the Sanitary Corps of the Army with a view toward providing constructive suggestions on the many problems occasioned by the war, including the safeguarding of army water supplies, the disposal of waste and malaria control.

The program covering future activities of the committee includes a continuation of its present work on the availability of and the demand for sanitary engineering personnel, the orderly procurement of and assignment to military, semimilitary and civilian agencies of trained sanitary engineers, information on military sanitary engineering problems and their solution and a consideration of postwar needs for sanitary engineers and the fields in which they may be most profitably utilized.

The committee has had strong liaison representation from the War Department by the presence in the deliberations of Colonels Simmons, Hardenbergh, Prentiss and Robinson, from the Navy by Admiral Stephenson and Commanders Cushing, Tipton and Burton, from the U. S. Public Health Service by Mr. J. K. Hoskins and from the Selective Service in the person of Major Robert A. Bier. The National Research Council representatives in the deliberations have been Drs. Weed, Davison and Forbes and Colonel Larkey.

INFORMATION SERVICE FOR WORKING MOTHERS

A recent release from the Department of Welfare of New York City calls attention to the need for a centrally organized but decentrally operated advice and information service for mothers. The members of the Mayor's Committee on Wartime Care of Children agreed that there is a major need for such a service where mothers who are employed in industry or are about to be employed can secure information as to the facilities which are available for the care of their children. According to the release, as many as six of these local centers may be established as a beginning.

NO MORE BIOLOGIC PRODUCTS IN SYRINGES

The syringe type package for biologic products is one of the latest war casualties. After the present stock of serums, vaccines and antitoxins packaged in single doses with syringes and needles enclosed runs out there will not be any more. According to the *Oil, Paint and Drug Reporter* the WPB is going to give priority assistance in the future for the syringes and needles.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Lectures on Venereal Disease.—Dr. Percy S. Pelouze, assistant professor of urology at the University of Pennsylvania School of Medicine, Philadelphia, and consultant for the gonorrhea control program for the U. S. Public Health Service, opened a series of lectures in Mobile, January 4. Dr. Pelouze will travel throughout the state during the month delivering talks to physicians and nurses and local medical societies.

CONNECTICUT

Personal.—The Stamford Medical Society recently gave a dinner in honor of Dr. Donald R. MacLean, Stamford, who practiced as an anesthetist in Stamford for twenty-five years prior to his retirement about seven years ago.

Society News.—Dr. Joseph I. Linde, health officer of New Haven and formerly president of the state medical society, was recently elected president of the Connecticut Tuberculosis Association. —— Dr. Leroy U. Gardner, Saranac Lake, N. Y., addressed the Yale Medical Society recently on "The Action of Silica and Its Neutralization."

Regional Meeting on Mental Deficiency.—The annual regional conference of the Northeastern Section of the American Association on Mental Deficiency was held at the Southbury Training School, Southbury, recently. The speakers included Dr. Joyce V. Deutsch, Southbury, on "Encephalography as a Therapeutic Procedure in Convulsive Disorders."

DISTRICT OF COLUMBIA

Study Medical Needs in Washington.—The committee on medical services of the Medical Society of the District of Columbia will conduct a survey of wartime medical needs of Washington. The city will be divided into areas. The volume of patients treated by each physician and the number he was unable to attend will be studied by the committee. In a statement to the press, December 20, Dr. A. Magruder Macdonald, president of the district society, stated that a recent study revealed there is now an adequate supply of physicians in Washington, provided there are not further drastic losses to the armed services and the deficiencies in distribution, now being studied, are remedied.

ILLINOIS

Assistant State Alienists Appointed.—Drs. Ralph C. Hamill, associate professor of psychiatry (Rush), and Irene C. Sherman, associate in psychiatry, University of Illinois College of Medicine, Chicago, respectively, have been named assistants to the state alienist, Dr. Harry R. Hoffman, to fill a temporary vacancy caused when the former assistants Drs. Melvin F. O. Blaurock, Oak Park, and Samuel H. Kraines left for military service on indefinite leaves of absence.

Chicago

Health of Industrial Workers.—The Chicago Conference on the Health of Industrial Workers will be held at the Palmer House on January 13 under the auspices of the Chicago Medical Society, Illinois Manufacturers' Association and the division of industrial hygiene of the state department of public health in cooperation with the committee on industrial health of the state medical society, Chicago Board of Health, Chicago Society of Industrial Medicine and Surgery, Chicago Industrial Nurses' Club and the Chicago Chapter of the American Industrial Hygiene Association. Among the speakers will be:

Dr. Carl M. Peterson, Secretary of the Council on Industrial Health, American Medical Association, The Urgent Need for Better Local Industrial Health Organization.
Dr. Clarence D. Selby, Detroit, Why Do Employees Stay Away from Work and What Can We Do About It?
Dr. Milton H. Kronenberg, How the Small Plant Can Conduct a Health Program.
Dr. Fred H. Albee, New York, Problems of Employing the Physically Handicapped.
Mr. George P. Wardley, The Employer's Viewpoint.
Mr. Alfred Borah, The Industrial Commission's Attitude.
Mr. Frank R. Peregrine, Medicolegal Aspects.

Mr. Sterling Morton, president of the Illinois Manufacturers' Association, will act as toastmaster at the dinner meeting and speakers will include Hon. Dwight H. Green, governor of Illinois, on "We Have a Job to Do to Improve the Health of the Industrial Worker," and Dr. Walter C. Alvarez, Rochester, Minn., "The Care and Feeding of Executives."

MARYLAND

Personal.—Dr. Edward Davens, Baltimore, pediatric consultant to the state department of health, has been appointed chief of the bureau of child hygiene to succeed Dr. James H. M. Knox Jr., Baltimore, effective September 1.

New County Hospital.—Lanham funds totaling $635,000 have been made available for the construction of a hospital and nurses' home for Prince Georges County. A 30 acre tract of land has been purchased at Cheverly to accommodate a one story 100 bed hospital and an adjoining 50 bed nurses' home. The new structures are expected to be completed by the end of February. The project was developed by a committee following an action taken about two years ago by the Prince Georges County Medical Society, when it went on record as deeming a hospital necessary and advisable.

MICHIGAN

Bulletin Dedicated to Dr. Handy.—A recent issue of the Bulletin of the Genesee County Medical Society was dedicated to Dr. John W. Handy, Flint, emeritus member of the Michigan State Medical Society, who has passed his ninetieth birthday. Dr. Handy graduated at the University of Michigan Medical School, Ann Arbor, in 1884 and has been practicing in Flint since 1885, according to the state medical journal.

Fund to Aid Library.—Dr. Bert R. Hoobler and his wife, Icie G. Macy Hoobler, Ph.D., Detroit, have given $500 to aid in the development of a Wayne University branch of the Hooker Scientific Library. The fund will be administered by Neil E. Gordon, Ph.D., chairman of the department of chemistry in the College of Liberal Arts and director of the Hooker Scientific Library, housed at Central College, Fayette, Mo.

Secretaries' Conference.—The annual County Secretaries' Conference of the Michigan State Medical Society will be held at the Olds Hotel, Lansing, January 24. The tentative program lists the following speakers:

Edward T. Broadwell, rationing director, OPA, Detroit, The Ration Program as It Affects Physicians.
Capt. Harold Mulbar, Michigan State Police, East Lansing, Any Spies in Michigan?
J. W. Holloway Jr., Director, Bureau of Legal Medicine, American Medical Association, Chicago, Physicians' Income Tax for 1942.
Dr. L. Fernald Foster, Bay City, Facts for the Physician.
Lieut. Comdr. Maxwell E. Lapham, Washington, D. C., How the Medical Profession Can Meet Military, Industrial, Research and Civilian Needs During Wartime.
Earl W. Munshaw, LL.B., state senator, Grand Rapids, Temporary Licenses and Dislocating of Physicians.
Eric C. Nissen, insurance councilor, Detroit, Group Disability Insurance for Physicians.

Cummings Foundation and Detroit Orthopaedic Clinic Merge.—Announcement has been received of the recent merger of the Cummings Foundation with the Detroit Orthopaedic Clinic. The foundation was established in 1920 for "the establishment and maintenance of a home for the care, maintenance and education of crippled children." For a time it was in such condition that no assets were available. The original group of trustees was augmented in 1934 by the formation of a foundation which functioned until June 1942. The fund is administered by a board of trustees elected annually by members of the corporation of the Detroit Orthopaedic Clinic. Estimated in 1920 at about $1,500,000, a large percentage of which was in real estate holdings, the fund has been decreased to about one third of its former value. The Detroit Orthopaedic Clinic, an outgrowth of Sigma Gamma Clinic, established in 1920, maintains an outpatient department in the city where approximately 1,000 patients are seen annually, a 50 bed hospital school in the country and a special program for the study of better methods for the care of physically handicapped children. Following the merger the name of Sigma Gamma Hospital School was changed to the George H. Cummings Memorial Hospital School, according to the terms of the will. Dr. Charles W. Peabody, Detroit, is chief of staff, Dr. Winthrop M. Phelps, Baltimore, is acting consultant for the cerebral palsy program, and sixteen surgeons and physicians serve as a consultant board for the agency. The organization offers a total program, with great emphasis on personality adjustment, through all departments. Programs which supplement orthopedic care include child guidance, nursery schools, recreation and vocational placement.

NEBRASKA

Former State Health Director Chosen Congressman-Elect.—Dr. Arthur L. Miller, Lincoln, formerly president of the Nebraska State Medical Association and until recently director of the state department of health, has been chosen congressman-elect from the Fourth District to the United States Congress.

NEW YORK

Personal.—Dr. Simon J. Gormley, deputy commissioner of the Albany Department of Health, has been named editor of the Albany Health Bulletin to succeed Dr. Daniel V. O'Leary, who has served in this capacity for many years. In the future, the bulletin will be published twice monthly instead of weekly. ——Dr. James P. Kelleher, Poughkeepsie, acting medical inspector in the state department of mental hygiene, has been appointed superintendent of the Rome State School, succeeding the late Dr. Charles Bernstein, Rome.

New York City

William Henry Welch Lectures.—Homer W. Smith, Sc.D., professor of physiology and director of the Physiological Laboratories, New York University College of Medicine, delivered a William Henry Welch Lecture at Mount Sinai Hospital of New York, January 5, on "The Physiology of the Kidney." A second lecture on the subject will be given, January 12.

Insurance Superintendent Chosen President of Hospital Service.—Louis H. Pink, LL.D., New York State Superintendent of Insurance since 1935, has been elected president of Associated Hospital Service of New York, filling the vacancy that occurred with the death of Dr. Sigismund S. Goldwater. Mr. Pink was to leave his office as superintendent of insurance on December 31.

New Head of Tonometer Station.—The National Society for the Prevention of Blindness has announced that Dr. Mark J. Schoenberg, chairman of its glaucoma committee, is now in charge of the station for checking the accuracy of original Schiötz tonometers which is maintained at the headquarters of the society, 1790 Broadway. Dr. Adolph Posner, who formerly directed the tonometer checking station, is on active duty with the United States Army Medical Corps.

Welfare Commissioner Granted Leave of Absence.—William Hodson, LL.B., who has just completed his ninth year of service as commissioner of public welfare of New York City, has been granted a two months leave of absence by Mayor LaGuardia so that he may undertake a mission for Herbert H. Lehman, LL.D., former governor of New York, and now director of Foreign Relief and Rehabilitation. Commissioner Hodson's leave will begin about January 15.

Dr. Magelaner Appointed Superintendent of Kings County Hospital.—Dr. Israel Magelaner, formerly medical superintendent of Harlem Hospital, has been appointed medical superintendent of Kings County Hospital, Brooklyn. He succeeds Dr. Emanuel Giddings, who left to join the army medical corps. Dr. Emanuel W. Lipschutz, who has been acting medical superintendent at the Kings County Hospital, has been named medical superintendent of the Harlem Hospital, succeeding Dr. Magelaner.

NORTH CAROLINA

Duke University Withdraws Aid from Maternity Clinic.—Effective March 24, sponsorship of the maternity clinic of the Charlotte department of health will be discontinued by the Duke University School of Medicine, Durham, newspapers report. Similarly, after that date, supplies for the clinic are not to be furnished by the school nor is Duke to continue to pay $30 a month to apply on the salary of a nurse employed in the clinic. There is hope that a plan may be worked out whereby aid might be obtained from the state board of health to assure uninterrupted conduct and maintenance of the clinic.

OREGON

Members of State Board.—Dr. Edward H. McLean, Oregon City, was recently appointed by the governor a member pro tem of the state board of medical examiners to succeed Dr. Frank E. Fowler, Astoria, who is serving in the U. S. Army. Dr. Harold L. Blosser, Portland, is president of the board, and Dr. Linford S. Besson, Portland, is secretary-treasurer. Other members of the board are Drs. Carl G. Patterson, Baker; Charles C. Newcastle, Portland; Irvin R. Fox, Eugene, and J. L. Ingle, D.O., La Grande.

PENNSYLVANIA

Supervision of Typhoid Carriers Requested.—The 1943 session of the Pennsylvania legislature will be asked to place all chronic typhoid carriers under state supervision, in accordance with a resolution advanced by the Lancaster City and County Medical Society and adopted recently by the state medical society. If the action is taken, the carriers would be registered and supervised but would be given limited pay to supplement their earned incomes for losses in salaries or wages resulting from restricted employment.

Programs on Industrial Hygiene.—County medical societies throughout the state are urged to present during February a program on industrial hygiene which has been endorsed by the state medical society. In order that there may be complete uniformity of presentation the commission on industrial health and hygiene of the society will furnish texts of papers to be presented. The subjects will cover objectives of organized medicine in industrial health and hygiene, medical and non-medical problems in the field and methods necessary to attain described objectives. The commission urges the societies to present this material, no matter what other commitments are planned.

Philadelphia

Roentgen Survey at Navy Yard.—The Philadelphia Tuberculosis and Health Association is conducting an x-ray survey of civilian employees at the Navy Yard in Philadelphia. Between 50,000 and 60,000 persons will be given examinations. The work is being done as a joint project of the tuberculosis association and the division of tuberculosis of the state department of health with the cooperation of officials at the Navy Yard and the U. S. Public Health Service. The *Bulletin* of the Pennsylvania Tuberculosis Society states that the survey is the most extensive case finding effort that has been undertaken in Philadelphia.

Hospitals Require Patients to Be Vaccinated.—Virtually all of the hospitals in the city are requiring vaccination of all patients and personnel to keep a smallpox outbreak in the area from entering the city proper, newspapers reported. More than 3,000 persons have been vaccinated within two weeks at the Philadelphia General Hospital and the municipal hospital for contagious diseases. Thousands in other hospitals and state institutions have been ordered vaccinated, it was stated. The orders were disclosed after the Abington Memorial Hospital at nearby Abington was quarantined under police guard on December 31 following the admittance of a 44 year old patient with smallpox. Eastern Pennsylvania has reported 37 cases in the first outbreak since the last war, it was reported. THE JOURNAL, January 2, page 61, reported an outbreak of smallpox in an Amish section in Kishacoquillas Valley.

TEXAS

Changes in Faculty at Texas.—Included among the recent changes in faculty at the University of Texas Medical Branch, Galveston, are the appointments of Charles B. Allen, Ph.D., as assistant professor of anesthesiology and Dr. Edward J. Lefeber as assistant professor of internal medicine. Dr. George M. Decherd Jr. has been named associate professor and clinical biochemist at the John Sealy Hospital.

Hospital Memorial to Physician.—The Newton Memorial Hospital was recently opened in Cameron. Chartered as a nonprofit organization, the hospital was founded to commemorate the life and work of the late Dr. William R. Newton Sr., who at the time of his death in 1938 was a state senator. The hospital was built from the home of the late Dr. Newton by expanding certain parts of the building, according to the state medical journal.

VIRGINIA

University News.—The Medical College of Virginia, Richmond, has received a grant of $8,400 from the Office of Scientific Production and Research of the U. S. government for the continuation of research on shock, which is being done by Dr. Everett I. Evans, assistant professor of surgery. Dr. Tinsley R. Harrison, professor of medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C., delivered the Alpha Omega Alpha Lecture at the medical college, November 24 on "Cardiac Dyspnea." The lecture is sponsored annually by the Alpha Omega Alpha fraternity.——The Nutrition Foundation has given a grant of $3,000 to Alfred Chanutin, Ph.D., for continuation of his investigation of "fat metabolism in the 'nephritic' rat" at the University of Virginia, Charlottesville.

GENERAL

New Trustees of Pathology Board.—Dr. Paul R. Cannon, professor of pathology, University of Chicago School of Medicine, and Dr. Robert A. Moore, professor of pathology, Washington University School of Medicine, St. Louis, were recently elected trustees at large of the American Board of Pathology.

Internal Medicine Board Reduces Fee.—The American Board of Internal Medicine announces a reduction in its registration and examination fee from $40 to $30. The certificate fee will remain at $10, making a total of $40. The oral examination fee in the subspecialties will remain at $10. The reduction in fees became effective on January 1 and will apply to candidates for the written examination on February 15 whose applications have not been accepted for a previous examination.

Van Meter Prize Awarded to Rochester Physicians.—The American Association for the Study of Goiter recently announced that the Van Meter Prize has been awarded to Walter Mann, B.S., research fellow in radiology, and Charles P. Leblond, University of Rochester School of Medicine and Dentistry, Rochester, N. Y., for their essay on "Chemical Transformation of the Iodine Fixed by the Thyroid Gland." Honorable mention was given to Dr. John Douglas Robertson, London, for his essay on "The Nature of the Disordered Calcium and Phosphorus Metabolism in Thyrotoxicosis and Myxedema" and Major Monroe A. McIver, M. C., A. U. S., and Mrs. Eleanor A. Winter, Cooperstown, for their work on "Liver Changes Occurring in Hyperthyroidism with Special Reference to the Deleterious Effects of Anoxia."

Resurvey of Graduate Nurses.—On January 1 a nationwide survey of graduate registered nurses was undertaken by the U. S. Public Health Service at the request of the subcommittee on nursing of the Office of Defense Health and Welfare Services. A questionnaire is being sent to nurses. Return postcards have been provided by the public health service and will be distributed in the states by the state agent appointed by the service for the purpose. Local nursing councils for war service and district nursing associations will cooperate in locating graduate nurses in their communities. The completed questionnaires will be retained in the local areas, tabulations of data being sent to the state agents, who in turn will send a complete tabulation for the state as a whole to the public health service in Washington, D. C. It is considered essential that every graduate nurse, married or single, active or inactive, fill out a questionnaire and return it to her state agent at once. Nurses who have not received the card may secure one from the state nursing council for war service or the state nurse's association.

Request for Contacts with Persons Interested in Medical Aspects of Crime.—The Medical Correctional Association, an affiliate of the American Prison Association, is interested in establishing contact with all professional personnel who are especially concerned with, or interested in, the medical aspects of crime. Dr. John D. Reichard, U. S. Public Health Service Hospital, Lexington, Ky., is president of the association, and other officers are Drs. John W. Cronin, El Reno, Okla., and Lawrence Kolb, Washington, D. C., vice presidents, and Dr. Robert M. Lindner, Lewisburg, Pa., secretary-treasurer. Membership in the association is confined to the following groups:

Physicians employed in penal and correctional institutions or jails.

Physicians, social welfare workers and special workers engaged in medical research work in penal and correctional institutions or jails.

Physicians, psychologists, social workers and special workers engaged in medical research work in connection with institutions or hospitals for the mentally ill, mentally defective individuals, juvenile delinquents, defective delinquents, outpatient or behavior clinics dealing with any aspect of crime or its prevention, criminal, juvenile and domestic relations courts, parole, probation, public and private schools, colleges and universities, and federal, state, county and municipal public health organizations.

Any person who, though not automatically falling in any one of the three aforementioned groups, presents satisfactory evidence of being engaged in research or an occupation in which the medical aspects of crime are acknowledged as important features.

Joint Orthopedic Meeting.—The eleventh annual meeting of the American Academy of Orthopaedic Surgeons and the thirtieth annual session of the Clinical Orthopaedic Society will be held at the Palmer House, Chicago, January 17-20. On Sunday there will be a panel discussion on "Chemotherapy in War Wounds" with Drs. Frank L. Meleney, New York, John S. Lockwood, Philadelphia, Champ Lyons, Boston, and Alton Ochsner, New Orleans, as the speakers. Monday morning Chicago members of the Clinical Orthopaedic Society will present a clinical program, and in the evening there will be a debate on the Kenny method of nursing care in poliomyelitis. Foreign guests on the academy program will be Dr. Herman de las Casas, Caracas, Venezuela, and Brigadier Walter Rowley Bristow, formerly of London, now chief orthopedic surgeon of the Royal Army Medical Corps. One session will be devoted to "Complicating Trauma Associated with Orthopedic Casualties." There will be instructional courses and scientific motion pictures every morning and afternoon. Included among other speakers on the academy program are:

Dr. Arthur B. LeMesurier, Toronto, Canada, Importance of Leaving a Good Amputation Stump.
Dr. Fred H. Albee, New York, Treatment of Nonunions of Gunshot Fractures With and Without Loss of Substance.
Dr. Robert I. Harris, Toronto, Fractures of the Os Calcis: Principles of Treatment with Improved Technic and the Results Obtained by It.
Dr. John Alexander, Ann Arbor, Mich., Injuries of the Chest.
Dr. Dallas B. Phemister, Chicago, Local Excision and Massive Transplantation in a Selected Series of Sarcomas Involving the Long Bones.
Dr. J. Warren White, Greenville, S. C., Total Carpectomy for Intractable Wrist Flexion.
Dr. Francis J. Halford, Honolulu, Hawaii, A Civilian Surgeon's Evaluation of Achievements and Mistakes.

Meetings of Ear, Nose and Throat Society.—The Eastern Section meeting of the American Laryngological, Rhinological and Otological Society will be held in Hartford, Conn., January 15. Speakers will include:

Drs. Gordon D. Hoople and Irl H. Blaisdell, Syracuse, N. Y., The Problem of Acute Serous Otitis Media.
Dr. Raymond H. Marcotte, Hanover, N. H., Local Sulfanilamide Therapy in Acute Mastoiditis.
Dr. Julius W. McCall, Cleveland, Preliminary Voice Training for Laryngectomy.

The Middle Section meeting will be held in Detroit, January 20. Among the speakers will be:

Scott N. Reger, Ph.D., Iowa City, Correlations Between Air and Bone Conduction Acuity Over Wide Frequency Ranges.
Dr. George J. Thomas, Pittsburgh, Pentothal in Ear, Nose and Throat Surgery.
Dr. Elisha S. Gurdjian, Detroit, Treatment of Skull Fractures in Relation to Nasal Sinuses and the Temporal Bone.

At the Southern Section meeting in Chattanooga, Tenn., January 28, the speakers will include:

Dr. J. Hallock Moore, Huntington, W. Va., Ménière's Syndrome.
Dr. Lester A. Brown, Atlanta, Ga., Osteomyelitis of the Frontal Bone.
Drs. Lee Cohen and Samuel L. Fox, Baltimore, Atresia of the External Auditory Canal.

The meeting of the Western Section in Portland, Ore., January 31, will be addressed, among others, by:

Olof Larsell, Ph.D., Portland, The Auditory Apparatus and the Inception of Hearing.
Dr. Ralph A. Fenton, Portland, Local Use of the Sulfonamides.
Dr. Albert B. Murphy, Everett, Wash., A Neuropharyngeal Syndrome Suggesting Virus Origin.

LATIN AMERICA

Personal.—The government of Cuba appointed Dr. Juan Miguel Portuondo Domenech, Havana, minister of public health and social aid. Dr. Miguel Etchebarne, Santiago, was recently appointed to a similar position in Chile by the government of Chile.

Hospital Service Praised by Chilean Federation.—The Medical Federation of Chile devoted the July-December 1942 issue of *Medicina Social* in its entirety to an extensive outline of hospital service in the United States. This issue is dedicated to the forty-fourth annual convention of the American Hospital Association held in St. Louis this past October. Thirty pages comprise a narrative, statistical and graphic presentation of hospital service in the United States. The cover page is illustrated with the American flag, a picture of the New York Hospital and an inscription tendering it as a homage for the forty-fourth annual convention of the hospital association. It also contains a forethought on the future of medical science which reads "We have before us a new frontier governed by technical, economic and social forces in contrast to our present concept of medicine. Let's be prepared." The editorial material in Spanish, written by Dr. Gustavo C. Fricke, director of the Hospital de Vina del Mar, Valparaiso, Chile, contains an article on the history of the first hospital in the United States and the evolution of hospital service to our present times; the distribution of hospitals in the United States; their classification, giving special emphasis to the hospital organization in the New York metropolitan area; the cost of medical care; medical staff organization in the hospitals of the United States; the role of physicians and nurses in the hospital field, and the education of technical personnel.

CORRECTION

Public Health in Chile.—In the Buenos Aires letter in THE JOURNAL, Oct. 17, 1942, page 549, in the ninth line from the bottom of the first item, entitled "Public Health in Chile," the number 3,600 should have been 3,600,000.

Foreign Letters

LONDON LETTER

(From Our Regular Correspondent)

Dec. 4, 1942.

Medical Committee to Advise Minister of Health

As previous letters to THE JOURNAL show, the war will bring about great changes in this country, and among these the practice of medicine must be included. Already several medical committees have investigated the subject. It is now stated in the House of Commons by the Ministry of Health that the government has set up a Medical Advisory Committee to advise the minister of health on the medical aspects of problems affecting the health of the people. The minister has for some time felt the need for associating with his work a representative body of medical men and women engaged mainly in the clinical practice of their profession. The members of the committee include the presidents of the Royal Colleges of Physicians, Surgeons and Obstetricians and Gynecologists, the chairman of the council of the British Medical Association, Prof. Henry Cohen, Prof. Harry Plat, Lord Dawson of Penn and Lord Horder.

Recruiting for Army from Medical Staffs of Hospitals

The universal recruiting of all classes for the fighting services has given rise to difficulties in the case of persons engaged in work necessary for the community. A prominent example is the medical profession and particularly the staffs of hospitals. Under present conditions it has been found impracticable to arrange for traveling army medical boards to visit hospitals for the purpose of examining the male medical staffs who are of military age, as was hoped. The only alternative was to use fixed centers, necessarily limited in number. This has entailed undue inconvenience and loss of professional time. It has therefore been decided to make the examinations at selected hospitals in the emergency hospital scheme by senior members of the staff of the hospitals. But as the decision as to medical fitness or otherwise of a physician for service must rest with the War Office, this examination by a civilian practitioner cannot finally determine the matter. If he finds that the physician is not physically fit for general service, the army council will arrange for his examination. But a physician found fit at the civilian examination will not be further examined unless and until he is nominated for a commission. Nothwithstanding the provisional nature of the civilian examination, it will serve the purpose for which the arrangements were initiated, by facilitating the task of the hospital authorities in planning ahead their staffing.

Social Reform to Produce Freedom from Want: The State to Provide Medical Treatment for All

On June 10, 1941 a minister announced in the House of Commons that he had arranged for a comprehensive survey of the existing system of social insurance and allied services, which would be considered in due course by the Ministerial Committee on Reconstruction Problems, and that well known economist Sir William Beveridge had accepted the invitation to become chairman of an interdepartmental committee which would conduct the survey. The committee was composed of government officials from the various departments involved. Later it was recognized that it would be difficult for these officials to commit themselves on issues of high policy involving their own departments. It was decided that Beveridge alone should be responsible for the report, while the officials acted as his advisers and assessors on the various technical and administrative matters with which they are severally concerned.

Beveridge's report has now been published. It commits the government, which has to examine it, to nothing, but there can be no doubt that something on the lines of the report is bound to be done. The discussions on social reform brought about by the profound dislocation of our normal activities necessitated by the war portend great changes. Our natural conservatism is due to an instinct to preserve what has been tried and to distrust of what has not been tried. Provision for most of the many varieties of need due to interruption of earnings and other causes that may arise in modern industrial communities has already been made on a scale not surpassed and hardly rivaled in any other country. In only one respect—limitation of medical service both in its range of treatment and in the classes for whom it is provided—do we fall short of what has been done elsewhere. For one thing we fall short in providing cash benefit for maternity and funerals and in the system of workmen's compensation.

Our social insurance and the allied services are conducted by a complex of disconnected administrative organs, proceeding on different principles, doing invaluable service but at an unnecessary cost. Limitation of compulsory insurance to persons under contract of service and below a certain remuneration, if engaged in nonmanual work, is a serious gap. Many persons working on their own account are poorer and more in need of state insurance than employees. There is no real difference between the needs of sick and the needs of unemployed persons, but they get different rates of benefit, involving different conditions. There are three different tests for noncontributory pensions, for supplementary pensions and for public assistance.

Beveridge lays down three guiding principles: 1. Any proposals, while using to the full the experience of the past, should not be restricted by considerations of sectional interests established in gaining that experience. A revolutionary moment in the world's history is a time for revolutions, not for patching. 2. Organization of social insurance should be treated as only one part of a comprehensive social progress. Fully developed, it may provide income security; it is an attack on want. But want is only one of five obstacles on the road of reconstruction. The others are disease, ignorance, squalor and idleness. 3. Social security must be achieved by cooperation between the state and the individual. The state should offer security for service and contribution but should not stifle initiative, opportunity or responsibility. It should encourage each individual to provide more than a minimum for himself and his family.

The scheme covers all citizens without upper income limits but has regard to their different ways of life and is classified in its application. Six main classes are recognized: (1) employees, (2) others gainfully employed, including employers and independent workers, (3) housewives, that is, married women of working age, (4) others of working age not gainfully occupied, (5) those below working age and (6) those retired and above working age. The sixth class will receive retirement pensions and the fifth will be covered by children's allowances. The four other classes will be insured for security appropriate to their services. All classes will be covered for comprehensive medical treatment, rehabilitation and funeral expenses. Every one in classes 1, 2 and 4 will pay a single security contribution by a stamp or single insurance document each week or combination of weeks. In class 1 the employer will also contribute. The contributions will differ from one class to another according to the benefits provided and will be higher for men than for women. As a substitute for unemployment benefit, training benefit will be available to assist persons to find new livelihoods if their present ones fail.

Unemployment benefit, disability benefit, retirement pension and training benefit will be at the same rate irrespective of

earnings. This rate will provide by itself the income necessary for all normal classes. There will be a joint rate for a man and wife who are not gainfully occupied. When there is no wife or she is gainfully occupied there will be a lower single rate. Unemployment benefit will be subject to attendance at a work or training center after a certain period. Pensions other than industrial will be paid only on retirement from work. They may be claimed after the minimum age, 65 for men and 60 for women. If retirement is postponed, the rate will be paid above the basic.

Medical treatment covering all requirements will be provided for all citizens by a national health service organized under the health departments. Postmedical rehabilitation treatment will be provided for all persons capable of profiting by it. There will be a comprehensive national health service for the prevention and cure of disease and a rehabilitation service fitting for employment by both medical and postmedical treatment. The health service will insure that for every citizen there will be available whatever treatment he requires in whatever form he requires it. The medical part of the scheme may be described as an extension, with much improvement, of the present panel system from manual workers and persons with small incomes to every one and to every form of treatment. What will remain of private practice? The answer "Very little, if any" can be safely given. The reaction of the medical profession to the scheme cannot yet be stated. It has been favorably received by all the political parties. Of the advantage of unifying all health services, with their inconsistencies and unnecessarily high costs of administration, there can be no dispute. What will probably give rise to controversy is extending social insurance to all, including millionaires. But the colossal taxation of high incomes, likely to last for years after the war, may diminish very much the number of rich. This taxation extends as high as thirty-nine fortieths of big incomes, and therefore the state provided medical service may be useful even to millionaires.

Compulsory Treatment of Venereal Disease

In contrast with the compulsory treatment of venereal disease in other countries, the arrangements in this country have been based exclusively on voluntary attendance. This is in accordance with that respect for the freedom of the individual which is characteristically British. But here the obvious criticism is that what is granted is freedom to spread disease. The voluntary system has had a large measure of success, and before the war the incidence of venereal disease was low and compared favorably with that of other countries. The war has now accustomed us to limitation of our freedom in many directions, and for good reason a new defense regulation introduces compulsion for the treatment of venereal disease in certain carefully defined circumstances. The new regulation leaves the voluntary basis unchanged but provides for compulsion where necessary to bring under treatment a group of persons —small in numbers but responsible for much harm—who are impervious to methods of education and persuasion and refuse to attend for treatment although known to be infected and to be spreading infection.

The regulation provides that persons named by two separate patients under treatment as the suspected source of their infection can be required, by notice served on them by the health officer of the district in which they live, to attend for examination and, if necessary, for treatment by a "special practitioner," and to continue treatment in accordance with his directions until they are certified as free from venereal disease in a communicable form. A special practitioner is defined as one employed or qualified to sit as a venereal disease officer of a treatment center, a specialist in venereal diseases in the fighting services or any other practitioner designated for the purpose by the minister of health.

The regulation imposes on "special practitioners," on receiving information from a patient under treatment for venereal disease as to the person from whom he suspects that the disease was contracted ("the contact"), the duty of sending to the local health officer particulars of "the contact." All information is to be treated as strictly confidential. A special practitioner is to serve on the contact (if found on examination to be suffering from venereal disease) a notice requiring attendance for treatment. A special practitioner in private practice is under no obligation to treat a contact as a private patient but, if he does, he must discharge the duties laid down in the regulation. If a patient fails to comply with a notice requiring him to attend for treatment or to follow directions given him, he becomes liable to a maximum penalty of three months' imprisonment or a fine of $500 or both. There are also penalties for giving false information in an attempt to blackmail some other person.

Tuberculosis Among Young People

The first Varrier-Jones lecture was delivered by Wing-Commander R. R. Trail, an expert on tuberculosis. His subject was "The Early Diagnosis of Pulmonary Tuberculosis." He said that except in a disappointingly small percentage of cases we were a long way from the early diagnosis of pulmonary tuberculosis. Tuberculosis now claimed half the total deaths from all causes at ages between 15 and 24. In the air force 40,119 members, including women of the auxiliary service, had been examined by mass roentgenography. Miniature roentgenograms, which can be made at far lower cost and at seven times the speed of full size ones, were taken. Despite the fact that 30,130 men concerned had within the previous six months a stricter medical examination than before, with a view to selection for special duties, the results of roentgenography of these unusually "fit" subjects showed that 65, 2.2 per thousand, exhibited signs of active disease, and 108, 3.6 per thousand, signs of inactive disease.

For the 9,989 women roentgenographed the figures were even worse: 38, 3.8 per thousand, had active disease, and 56, 5.6 per thousand, had inactive. The highest figures per thousand occurred in the age groups up to 29, being much greater in women than in men. While the incidence of active disease was practically 1 per thousand more for women in the age group 20-24, for women under 20 it was double that of men. For inactive disease the incidence in women under 20 was four times as great as among men, and in the age group 20-24 one and a half times as great.

The figures show that among our supposedly healthy adolescent and young adult population between 18 and 24 some 3 per thousand had unsuspected active tuberculosis and that more than 1 in 2,000 was a potential source of infection, as, unknown to himself, the patient had positive sputum. We have a population of some 5 millions in these age groups. This means that some 15,000 persons in Britain have unsuspected tuberculosis. All of them require at least expert supervision and advice, and many are in need of treatment. These figures relate to persons without admitted symptoms. The conclusion is that some 25 per cent more cases can be found in the early stage of tuberculosis by mass roentgenography than by the ordinary methods of diagnosis.

Royal College of Surgeons a Meeting Place for American and Canadian Medical Officers

The council of the Royal College of Surgeons has decided to offer the use of the library as a meeting place for American and Canadian medical officers.

Deaths

Joseph Rilus Eastman ✠ Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1894; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1897; professor emeritus of surgery at the Indiana University School of Medicine; president of the Indiana State Medical Association in 1919 and of the Indianapolis Medical Society in 1925; member of the American Surgical Association and of the Société Internationale de Chirurgie; member and in 1913-1914 president of the Western Surgical Association; a founder, fellow and formerly governor of the American College of Surgeons; received a certificate of merit for an exhibit of fetal peritoneal folds by means of special photographs and drawings in the Scientific Exhibit of the American Medical Association in 1913 and was a member of the House of Delegates of the Association from 1912 to 1915, in 1917, from 1919 to 1922 and in 1924; during World War I was a director of the American Hospital in Vienna, Austria, and received the Austrian Imperial decoration of the Red Cross for his work there; later served as a major in the medical corps of the U. S. Army and as a member of the general medical board of the Council of National Defense; formerly on the staffs of St. Vincent's and Deaconess hospitals; owner and director of the Joseph Eastman Hospital; visiting surgeon at the Indianapolis City Hospital; aged 71; died, November 29, of diabetes mellitus.

Howard Bennett Mettel ✠ St. Louis; University of Michigan Medical School, Ann Arbor, 1921; since Oct. 1, 1942 director of medical and health service of the Midwestern Area of the American Red Cross; served as assistant professor of pediatrics and assistant in medical economics and postgraduate instruction at the Indiana University School of Medicine, Indianapolis; instructor of pediatrics at his alma mater from 1923 to 1925; member of the Indiana State Medical Association; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics; for many years chief of the bureau of maternal and child health of the Indiana State Board of Health and acting director of the division of services for crippled children in the state department of public welfare at Indianapolis; in 1940 was elected secretary, in 1941 vice chairman and later chairman of the maternal and child health division of the American Public Health Association; served as secretary of the Indianapolis Medical Society; was a member of the staffs of the James Whitcomb Riley Hospital for Children, Methodist, St. Vincent's and Indianapolis City hospitals, Indianapolis; aged 46; died, November 30, in the Barnes Hospital of bronchopneumonia.

George Thomas Tyler Jr. ✠ Greenville, S. C.; Johns Hopkins University School of Medicine, Baltimore, 1904; past president and a member of the executive committee of the Greenville County Medical Society; one of the founders' group and specialist certified by the American Board of Surgery; served in the medical corps of the U. S. Army during World War I; at one time operated a private hospital; served as a chief of the general surgical service, president of the staff and on several committees of the organized staff of the Greenville General Hospital; for two years or more editor of the *Bulletin* of the Greenville County Medical Society; aged 66; died, November 26, in the Johns Hopkins Hospital, Baltimore, of a fungous infection of the meninges.

Lenna Leota Meanes, New York; Drake University Medical Department, Des Moines, Iowa, 1897; formerly clinical instructor in obstetrics at her alma mater; at one time director of the baby health conference of the Iowa State Department of Agriculture; past president of the Iowa State Society of Medical Women; served on the staffs of the Salvation Army Maternity Home and the Methodist and Mercy hospitals, Des Moines; for many years medical director of the Foundation for Positive Health, Inc.; author of "Exercises for Health"; aged 71; died, December 4, in the Braker Memorial Home of coronary occlusion and hypertension.

Harold Egbert Alexander, Saskatoon, Sask., Canada; University of Toronto Faculty of Medicine, 1910; F.R.C.S., Edinburgh, Scotland, 1925; fellow of the American College of Surgeons; attending surgeon, St. Paul's and City hospitals; aged 58; died, October 5.

Francis Marion Barton, Willisville, Ark.; St. Louis College of Physicians and Surgeons, 1910; aged 73; died, November 25, of prostatitis and cystitis.

Phebe Anderson Bottorf, Kalispell, Mont.; Hahnemann Medical College and Hospital, Chicago, 1894; aged 80; died, November 16, in Los Angeles of cerebral hemorrhage.

John D. Bryant, Fayetteville, Tenn.; University of Tennessee Medical Department, Nashville, 1890; member of the Tennessee State Medical Association; aged 75; died, November 24, of coronary heart disease.

Edwin Martin Bullwinkel, Brooklyn; Long Island College Hospital, Brooklyn, 1898; member of the Medical Society of the State of New York; aged 65; died, October 10.

Martin Francis Burns, Port Washington, N. Y.; College of Physicians and Surgeons, New York, 1895; aged 73; died, November 15, of acute coronary occlusion.

Matthew Campbell ✠ La Crescenta, Calif.; L.R.C.P. and S., Ireland, 1904; served as a captain in the medical corps of the U. S. Army during World War I; aged 68; died, November 10, in the Glendale (Calif.) Sanitarium of coronary thrombosis.

Samuel Victor Carmichael, Strome, Alta., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1908; aged 60; died, October 27, of a heart lesion.

Barrett Conner Catlin, Baltimore; Southern Homeopathic Medical College, Baltimore, 1895; at one time associate professor of obstetrics at his alma mater; formerly chief of the eye clinic, obstetrician and secretary of the board of directors of St. Luke's Hospital; aged 74; died in November.

John Coulter Cheeseman, Ingram, Pa.; Miami Medical College, Cincinnati, 1878; member of the Medical Society of the State of Pennsylvania; aged 95; died, November 24, of hypostatic pneumonia following an old cerebral hemorrhage.

Ratford Frank Childs, Audubon, Iowa; Omaha Medical College, 1897; member of the Iowa State Medical Society; associate on the staff of the St. Anthony Hospital, Carroll; aged 68; died, November 19, of coronary thrombosis.

Carter James Crippen, Constable, N. Y.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1878; aged 90; died, November 12, of bronchopneumonia.

Alfred W. Crozier, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1904; member of the Medical Society of the State of Pennsylvania; served as a lieutenant in the medical corps of the U. S. Army during World War I; formerly a member of the staff of St. Francis Hospital; aged 63; died, November 9, of chronic myocarditis and coronary occlusion.

James Taylor Davis, Elizabeth, N. J.; Howard University College of Medicine, Washington, D. C., 1920; member of the Medical Society of New Jersey; aged 52; died, November 21, of heart disease.

Ephraim Elmer Ellsworth ✠ Ironton, Ohio; University of Louisville (Ky.) Medical Department, 1894; formerly secretary of the Lawrence County Medical Society; on the staff of the Charles S. Gray Deaconess Hospital; aged 78; died, November 12.

Charles Cowdrey Fitts, Carrollton, Ga.; Emory University School of Medicine, Atlanta, 1917; member of the Medical Association of Georgia; served during World War I; head of the medical unit of the county civilian defense board and until recently chief examiner of the local draft board; aged 48; died, November 8.

Thomas H. Flynn ✠ Somerville, N. J.; Albany (N. Y.) Medical College, 1890; past president of the Somerset County Medical Society; on the emeritus staff of the Somerset Hospital; for many years director of the Second National Bank of Somerville; aged 85; died, November 27, of chronic myocarditis.

William Martin Garner, Rosston, Ark.; University of Arkansas School of Medicine, Little Rock, 1911; member of the Arkansas Medical Society; aged 59; died, November 19, of cirrhosis of the liver.

Lester McCutcheon Githens, Wren, Ohio; Eclectic Medical College, Cincinnati, 1921; served during World War I; aged 47; died, November 16, in the Adams County Memorial Hospital, Decatur, Ind., of uremia.

William Laurence Gray, Seattle; Vanderbilt University School of Medicine, Nashville, Tenn., 1901; aged 69; died, November 11, of coronary embolus.

Sergius Alexander Hartman, Milwaukee; University of Moscow Faculty of Medicine, Russia, 1895; aged 73; died, November 13, of chronic cardiovascular disease.

Charles Henry, Pleasant Plain, Iowa; State University of Iowa College of Medicine, Iowa City, 1886; also a pharmacist; for many years a member of the U. S. Pension Board; aged 82; died, November 23, in Ottumwa of arteriosclerosis.

Robert G. Herring, Martinville, Ark.; University of Arkansas School of Medicine, Little Rock, 1901; aged 83; died, November 30, of pneumonia.

Nathan J. Hughes, Waverly, Ill.; Cincinnati College of Medicine and Surgery, 1879; University of the City of New York Medical Department, 1890; for several years was on the Waverly township high school board of education; aged 88; died, November 18, of cerebral hemorrhage.

Herbert S. Hutchinson, Milford, N. H.; Bellevue Hospital Medical College, New York, 1880; member of the New Hampshire Medical Society and for fifty years' membership in the society received a gold medal in 1932; aged 93; died, November 26.

Amanda Elizabeth Ingraham ✠ Wethersfield, Conn.; Tufts College Medical School, Boston, 1900; member of the American Academy of Pediatrics and of the New England Pediatric Society; at one time founded a hospital and organized a training school for nurses for the Serbian government; director of the bureau of child hygiene of the Connecticut State Department of Health at Hartford from 1923 to 1936; aged 68; died, November 26, of heart disease.

Joseph Clinton Irvine, Denver; Homeopathic Hospital College, Cleveland, 1884; aged 84; died, November 18, of bulbar paralysis.

Edward Joslin ✠ Whitehall, N. Y.; Albany Medical College, 1891; village health officer of Whitehall from 1922 to 1939; aged 74; died, November 24, of carcinoma of the sigmoid.

John Alexander Lane ✠ Eureka, Calif.; Cooper Medical College, San Francisco, 1898; aged 68; died, November 11, in St. Joseph Hospital of coronary thrombosis.

George Mitchell Lochner, St. Petersburg, Fla.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; member of the Florida Medical Association; served overseas as a captain in the medical corps of the U. S. Army; surgeon general of the National and Florida Veterans of Foreign Wars; aged 56; died, November 17.

Eugene Y. Malone, Trussville, Ala.; Medical College of Alabama, Mobile, 1892; served during World War I; aged 73; died, November 25, of angina pectoris.

Frank F. Martin, Roosevelt, Okla.; St. Louis College of Physicians and Surgeons, 1907; aged 62; died, November 17, in the General Hospital, Hobart, of a kidney infection.

Orson Eugene Matter, Maywood, Ill.; Chicago Homeopathic Medical College, 1896; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; member of the Illinois State Medical Society; aged 70; died, December 3, in the Oak Park (Ill.) Hospital of arteriosclerosis.

Frederick Aaron Meisle ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1904; aged 62; died, November 21, in the Jefferson Hospital.

William George Moorehouse, Lancaster, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1885; formerly a medical examiner for the Pennsylvania Railroad; aged 80; died, November 20, in the Lancaster General Hospital of a fracture of the right femur as the result of a fall, pneumonia and arteriosclerosis.

Charles Samuel Noble, Seattle; New York University Medical College, New York, 1896; aged 67; died, November 15.

Dorothy Kathryn O'Connor, Riverside, Ill.; University of Illinois College of Medicine, Chicago, 1938; member of the Illinois State Medical Society; aged 31; died, November 20, in St. Luke's Hospital, Chicago.

Edward R. Palmer ✠ Ashland, Ky.; University of Louisville Medical Department, 1896; past president of the Jefferson County Medical Society, the Louisville Society of Medicine and the Louisville Urological Society; at one time vice president of the Kentucky State Medical Association; formerly professor of physiology at his alma mater; aged 70; died, November 25.

Ernest Boring Porter ✠ Altadena, Calif.; Northwestern University Medical School, Chicago, 1925; fellow of the American College of Physicians; formerly health officer of Coronado; served during World War I; captain, medical reserve corps, U. S. Army, not on active duty; on the staff of the Mercy Hospital, San Diego from 1927 to 1938; aged 47; died, November 15, of coronary thrombosis.

Moses D. Rabenoyich, Toledo, Ohio; University of St. Vladimira Faculty of Medicine, Kiev, Russia, 1879; aged 84; died, November 25, in the Toledo Hospital of hypostatic pneumonia following a fracture of the left femur due to a fall.

Florence Stephen Richard, Shreveport, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1919; aged 49; died, November 11.

Alexander Peter Robertson ✠ Alton, Ill.; National University of Arts and Sciences Medical Department, St. Louis, 1913; past president of the Madison County Medical Society; served in the medical corps of the U. S. Army during World War I; at one time health commissioner of Alton; for seventeen years director of the Social Hygiene Clinic; aged 52; on the staff of the Alton Memorial Hospital, where he died, November 20, of ruptured aneurysm of the aorta.

Frank Augustus Ross ✠ South Berwick, Maine; Medical School of Maine, Portland, 1896; aged 69; died, November 16, of cerebral hemorrhage.

Benson Ruddell, Frankfort, Ind.; Medical College of Indiana, Indianapolis, 1900; member of the Indiana State Medical Association; aged 66; died, November 24, of carcinoma of the cervical glands of the left side of the neck.

S. P. Ruff, Marshall, Ark. (licensed in Arkansas in 1903); aged 82; died, November 26, of lobar pneumonia.

Edwin Stanton Saylor, West Point Pleasant, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; member of the Medical Society of the State of Pennsylvania; at one time chief of ophthalmology at St. Timothy's Hospital and on the staffs of the Wills, Pennsylvania and Polyclinic hospitals, Philadelphia; formerly lecturer on diseases of the eyes and ears at the American Stomach Hospital, Philadelphia; served during World War I; aged 76; died, November 23, in Laurelton of myocarditis.

Ernest Schemer, Grand Rapids, Mich.; Detroit College of Medicine, 1894; aged 84; died, November 18, of senility.

William H. Slattery, Lincoln, Neb.; St. Louis College of Physicians and Surgeons, 1902; formerly city physician; a member of the executive board and active member on the committee of internal medicine of St. Elizabeth Hospital; aged 70; died, November 17, of diabetes mellitus.

Louis E. Slayton, Spencerport, N. Y.; University of Vermont College of Medicine, Burlington, 1884; aged 80; died, November 29, in Cazenovia of arteriosclerotic cardiorenal disease.

Henry Hutchison Taggart, Wichita, Kan.; Kansas City (Mo.) Medical College, 1900; formerly secretary of the staff of the Wichita Hospital; aged 68; died, November 9.

Frederick Llewellyn Thomson, San Antonio, Texas; McGill University Faculty of Medicine, Montreal, Que., Canada, 1896; member of the Bexar County Selective Service Board number 9; aged 68; died, November 17.

Achilles Douglas Tyree, Clifton Forge, Va.; Medical College of Virginia, Richmond, 1911; member of the Medical Society of Virginia; served as a captain with the British Expeditionary Forces in France during World War I; aged 52; died, November 12.

Herbert Dutton Weaver, Saskatoon, Sask., Canada; Trinity Medical College, Toronto, Ont., 1897; for several years lectured at the Dalhousie University Faculty of Medicine, Halifax, N. S.; aged 75; died, September 12, in St. Paul's Hospital.

James L. Wells, Chicago; Harvey Medical College, Chicago, 1902; member of the Illinois State Medical Society; formerly on the staff of the Englewood Hospital; aged 72; died, December 14, of coronary thrombosis and hypertension.

Carolyn Louise Westlake Widdowson, Le Roy, N. Y.; University of Buffalo School of Medicine, 1897; aged 69; died, November 3.

DIED WHILE IN MILITARY SERVICE

Frank Clinton Andrus ✠ Minneapolis; University of Minnesota Medical School, Minneapolis, 1933; specialist certified by the American Board of Pathology, Inc., member of the American Association of Pathologists and Bacteriologists and of the American Society of Clinical Pathologists; assistant professor and formerly teaching fellow in the department of pathology at his alma mater; at one time instructor of pathology at the Ohio State University College of Medicine, Columbus; in April 1938 was appointed director of the laboratory of the Springfield City Hospital; in September 1939 was made director of the laboratory of the Minneapolis General Hospital; captain in the medical corps, Army of the United States; chief of the laboratory service of the Percy Jones General Hospital, Battle Creek, Mich.; aged 35; died, November 14, in Battle Creek, Mich., of coronary occlusion.

Bureau of Investigation

SOME MISCELLANEOUS MEDICAL FRAUDS

A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following are brief abstracts of some fraud orders not dealt with previously:

Ambrew Mate Institute.—Under this trade style an Adna E. Hall of New York started in 1933 an enterprise then limited to the sale of "Ambrew Mate Tea," a proprietary name for a plant leaf product from South America. That period, it will be recalled, was the heyday for exploiting mate (under proprietary names) as a "tonic" and many other things. Around 1937 Hall went into the hair growing business. In his advertising he quoted from what he described as a newspaper feature article written in 1937 by George Jean Nathan, dramatic critic, in which Mr. Nathan is supposed to have claimed that fifteen years earlier, when some of his hair had fallen out after an attack of influenza, an English sea captain who "had a head of hair at sixty-two that looked like the Wild Man of Borneo's" told him that the heavy growth was due to application of the juice of the mullein plant, whereupon the critic tried the stuff himself and obtained similar results, as did "scores of his personal friends." The story was dealt with in a current comment in THE JOURNAL, April 10, 1937, page 1266. From the newspaper article Hall claimed to have got the inspiration for an alleged hair grower and proceeded to market it under the name "Lotta-Lox," which a government chemist found to be a mixture of 2.6 Gm. of mullein, with glycerin and rosewater. Hall's representations for this as a cure for baldness did not convince the Post Office Department, which, after an investigation, notified him to show cause on Jan. 9, 1942, why the mails should not be closed to his business on the ground that it was fraudulent. Hall did not appear at the hearing on that date but sent his attorney. An expert medical witness for the government testified that many cases of falling hair and baldness are due to systemic causes not remediable by external application of local tonics, and that the commonest form of permanent baldness, alopecia prematura, is due to hereditary factors and not amenable to any known treatment; that in alopecia areata the hair may return in course of time without artificial aid, and that in senile alopecia, or baldness of old age, resulting from progressive loss of hair due to atrophy of hair follicles, there could be no restoration of hair growth. It was further shown that Hall's mullein mixture would have no effect on systemic causes of baldness or in any way bring about a growth of new hair or stop excessive hair loss. The witness dismissed the testimonial credited to Mr. Nathan for the efficacy of mullein in baldness with the opinion that the regrowth of hair, if any, was due not to the mullein but "to time and time alone." In spite of the defense attorney's contention that Hall's advertising contained "no representation or promise" as to the curative power of Lotta-Lox and that the government's expert medical witness was not qualified to pass on the merits and action of the product without having personally used or prescribed it, the preponderant evidence at the hearing was that the business amounted to obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. The Post Office accordingly issued a fraud order on May 6, 1942 against the Ambrew Mate Institute and its officers and agents.

David Aitchison.—From Arlington, Va., this person sold a "cancer cure" through the mails, and styled himself "M.D., D.D.M., L.L.D." In December 1941 the Post Office Department notified him to show cause at a hearing to be held on Jan. 16, 1942 why a fraud order should not be issued against him. Neither Aitchison nor any one representing him put in an appearance but subsequently he sent the Post Office a statement commenting on what had taken place at the hearing. The gist of the evidence presented there and of Aitchison's communication as reported is given in the following abstract of the Post Office memorandum of this case. Aitchison solicited business by means of advertisements placed in periodicals circulating through the mails. One of these read: "Cancer treated successfully by the famed Street method." (Whatever that was.) To inquirers Aitchison sent handwritten questions regarding their physical condition and from their replies he pretended to diagnose their cases, after which, of course, he recommended his "treatment" at various prices ranging from $25 to several hundred dollars. It appears that he prescribed for a variety of disorders. His cancer treatment consisted of three preparations called "No. 36," "No. 52" and "Rectum." Government chemists reported on these as follows: No. 36, a gray uncoated tablet of 3.1 grains containing milk sugar, lactose hydrate and 1/10 grain of charcoal; No. 52, a powdered material containing senna leaves, buckthorn bark, alfalfa leaves and stems, caraway seed and about 10 per cent of sodium sulfate; Rectum (rectal injection), a hydroalcoholic solution containing 1.7 grains of plant extractives per hundred cubic centimeters, with no minerals or alkaloids. The medical witness at the hearing, an eminent authority on cancer, testified that this combination of medicines would have no value whatever in the treatment of any type of cancer nor would Aitchison's recommendation of diet, exercise and rest eliminate or even check a cancerous condition. It was brought out that although Aitchison claimed to be licensed as a doctor of naturopathy in Maryland, Virginia and Tennessee, the authorities of those states denied this. Among other evidence submitted at the hearing was a certified copy of a record of the District of Columbia Police Court, showing that Aitchison had been convicted on Nov. 1, 1922 of practicing medicine in that district without a license and sentenced to pay a fine of $1,000 or serve 90 days in jail. It was further shown that though Aitchison claimed to be a graduate of the "National College of Therapeutics," a school which he stated had specialized in naturopathy, but which is no longer in existence, he had had no recognized medical training and, so far as the evidence showed, was not licensed to practice medicine or any other method of healing anywhere in the United States. Neither did his communications to the Post Office Department offer any evidence to support his claim that he had cured many cases of cancer. Accordingly, a fraud order debarring his business from the mails was issued on Feb. 23, 1942 against the various designations under which he had operated.

Glamo-Form Products.—This was the trade style used by a Brooklyn concern which sold through the mails an alleged bust developer known as "Glamo-Form." This was sold for $1 with the promise that, when used as directed, it would enlarge and reshape flat, undeveloped breasts and provide the user with a "beautiful bust line" and, further, would develop "unshapely and thin legs" into legs with beautiful, symmetrical proportions. The Glamo-Form concern was said to be receiving about 100 pieces of mail daily at the time that the Post Office notified this company to show cause on Feb. 5, 1942, why it should not be debarred from the mails for operating a fraud. The defendant company denied the charges, alleging that what it actually offered was a course of treatment consisting of advice on massage and brassières and that the entire course was not confined to the use of its massage cream. No one representing the concern appeared at the hearing, however, to testify that it was engaged in selling brassières. On the contrary, the evidence presented clearly showed that the only product actually intended to be sold was the massage cream. In fact, it was shown that the promoters sold the cream to women who wrote in that they desired this product if it would provide them with a beautiful bust line in place of breasts that had been flat and flabby for years. The cream, according to government chemists, was nothing more wonderful than a mixture of oils, fats and wax with 10 per cent of water and 1.5 per cent of camphor. An expert medical witness for the government testified at the hearing of this case that the cream of itself would neither build up flat, flabby breasts nor reduce those which were large and pendulous, nor would the accompanying recommended exercises accomplish this result. This testimony was even confirmed by the defendant's medical witness, an unnamed Brooklyn physician, whose admission of those facts must have given scant support or comfort to the concern that had hired him. Altogether, the evidence showed that the Glamo-Form business was a scheme to obtain money through the mails by means of false and fraudulent pretenses, representations and promises, and it was accordingly debarred from the mails by a fraud order issued on March 27, 1942, against the names Glamo-Form and Glamo-Form Products of Brooklyn and their officers and agents.

Hairtone Company and Marvel Company.—Of the making of many "hair growers," as with books, there is no end. The one that was exploited under the name "Quinine Hair Marvel" by a Matilda Richman of Brooklyn, first doing business as the Marvel Company and later as the Hairtone Company, was another to come under the scrutiny of the Post Office Department. If one could believe the claims made for it, this product when used as directed would overcome the "most obstinate" case of baldness, eliminate dandruff and grow moustaches and eyebrows "like magic." A government chemist's report on it, however, was somewhat disillusioning, showing that it was merely a mixture of substances used for years in "hair growers" which never grew any hair: petrolatum, a trace of a vegetable oil, about 1 per cent of sulfur and less than 1 per cent of quinine. In time the product seems to have been changed over to liquid form under a new designation "Quinine Hairtone with Olive Oil" which, according to its exploiter, contained salicylic acid and quinine sulfate, 1 grain each, betanaphthol, ½ grain, resorcin, 2 grains, sulfur, 20 grains, olive oil, 8 minims, and castor oil, 30 minims. Thus the name of the preparation was misleading, since the mixture contained more castor oil than olive oil. Not for this reason but because of other false and misleading representations under which it was sold, the Post Office Department after due investigation of the scheme ordered the promoter of the Hairtone Company and Marvel Company, to appear at a hearing on Jan. 30, 1942, and answer charges of conducting a mail order fraud. Her attorney appeared for her. An expert medical witness for the Post Office described at some length the various causes of baldness (with which the defendant's medical witness, a Brooklyn physician whose identity was not disclosed in the memorandum on the case, agreed) and further showed that the treatment in question would have no value in removing or correcting these conditions. Also without weight, the government charged, was the contention of the defendant's counsel that Matilda Richman had not intended to represent her preparations as a treatment for baldness or to give the impression that the use of the product will grow hair "unless the hair roots are actually alive." The government disproved this claim of the attorney by showing that in at least one instance Matilda Richman had sold her "Quinine Hair Marvel" to an inquirer who had described himself as almost completely bald and who had specifically stated that he wanted the preparation *if it would grow new hair on the bald spots.* In view of the preponderant evidence that the treatment did not justify the representations made for it, the business was debarred from further use of the mails by a fraud order issued on May 22, 1942, against the names Hairtone Company and Marvel Company and their officers and agents.

Nu-Hair Products.—Under this trade style one Joseph Vallon operated from New York and Brooklyn in selling an alleged hair grower through the mails. It was known as "Complete Nu-Hair Scalp Treatment" and comprised the "Besgro Formula," "Pressing Compound" and "Special Shampoo." If one could believe the advertising these would cure head sores and scars, prevent loss of hair and "grow long, healthy hair" on the head of any person who was bald. There was the additional promise that "great success has been reported in most obstinate cases." In view of these claims the Post Office Department notified the concern to show cause on January 27, 1942 why a fraud order should not be issued against it. On that date the concern's attorney appeared at the hearing. A qualified chemist testified that his analyses had shown the following compositions: Nu-Hair Besgro: an opaque yellow salve con-

taining petrolatum, 6.55 per cent of sulfur and a small amount of wool fat; Nu-Hair Pressing Compound: a slightly perfumed, amber colored petrolatum salve; Castile Shampoo: a granular soap powder with no medication. The chemist added that he did not find the quinine and balsam peru claimed to be present in the Nu-Hair Besgro. An expert medical witness testified for the government that though the sulfur in this product would destroy parasites in the hair and scalp and that the ointments would tend to soften the epidermis of the scalp, with the shampoo acting as a cleanser, the treatment as a whole would be of no value for any systemic cause of baldness or falling hair, and this fact also was admitted by the defendant's witness. This was a Dr. Edward Podolsky of Brooklyn, who confessed that he was not a dermatologist. Podolsky is, however, known to have promoted the sale of various fad foods. Eventually the Nu-Hair Products and their officers and agents were debarred from the mails by a Post Office fraud order issued on March 9, 1942.

Correspondence

RESUSCITATION OF THE NEWBORN

To the Editor:—With regard to resuscitation of the newborn, almost all students of the subject advocate tracheal intubation. This is a simple operation if the proper directions are followed.

First, one needs a semirigid catheter of latex or some similar substance of approximate size F. 12. The tracheal end preferably should be beveled and all surfaces emery papered smooth. Its length of about 8 inches has been found satisfactory. For the past several years, students of the University of Georgia School of Medicine have been taught tracheal intubation by practice on a recently delivered stillborn infant. The technic is so simple that each of a class of forty is able to intubate the trachea during a one hour period. This includes exposure of the trachea by direct laryngoscopy with an electric lighted infant laryngoscope, of which several inexpensive models are on the market. With the epiglottis held anteriorly by the laryngoscope blade, while the infant lies supine on a flat surface, the catheter is gently inserted into the round tracheal opening which lies immediately anterior to the larger esophageal cavity. The catheter is inserted about 2 inches and then the insufflator is attached to the other end.

We have found satisfactory a simplified De Lee type of mouthpiece insufflator with an added weighted valve which automatically prevents too much pressure to the lungs (Volpitto, P. P., and Torpin, Richard: Apnea Neonatorum: Its Treatment by a Simplified Insufflation Technic, *South. M. J.* **35**:559 [June] 1942).

There is little doubt that many infants could be made to breathe that never do, and that many who die in the first week or so of life from pneumonia probably obtain the infection from inspiration of infected secretions at the time of birth.

RICHARD TORPIN, M.D., Augusta, Ga.

"JEJUNAL ULCERS AND RECURRENT HEMORRHAGES AFTER PARTIAL OR SUBTOTAL GASTRECTOMY

To the Editor:—The article by E. D. Kiefer on this subject (THE JOURNAL, Nov. 14, 1942) may change the whole aspect of surgical treatment of duodenal ulcer. If radical operation is followed by jejunal ulcer in as many as 7 per cent of the cases then our conception that gastrectomy is superior to gastroenterostomy has to be revised.

However, an analysis of the 12 cases reported in Dr. Kiefer's paper does not permit the assumption that the results of radical operation in duodenal ulcers are "tragically disappointing" as far as postoperative jejunal ulcers are concerned.

As a matter of fact, in 7 of the 12 cases no radical operation but Finsterer's method was used, and according to a personal communication of Dr. Kiefer in 2 cases of the remaining 5 gastric resection was done not for duodenal ulcer alone but for duodenal ulcer plus gastroenterostomy plus jejunal ulcer.

In the 30 cases of Dr. Kiefer's series in which the Finsterer operation was done, it must be appreciated that in this method the ulcer, the pylorus and part of the antrum are not included in the resection. In 7 of these 30 cases jejunal ulcers subsequently developed. The first disappointing results of the Finsterer procedure were published as far back as 1932 (a bibliography is presented in an article on technical procedures in the *Journal of the International College of Surgeons* **5**:1 [Jan.-Feb.] 1942). Dr. Kiefer is quite correct in stating that "any procedure that does not remove the pylorus and the duodenal ulcer is inadequate," as it is not a radical operation.

As to the 2 patients who had duodenal ulcer plus gastroenterostomy plus jejunal ulcer, in them the question of primary radical operation for duodenal ulcers is not involved. Those marginal ulcers which recur even following partial gastrectomy are frequently looked on as "surgically incurable." That designation is not entirely justified. However, it is most probable that these "incurable" ulcers are not primarily incurable but that insufficient surgical intervention such as gastroenterostomy or the Finsterer operation results in an irritative condition which later makes the ulcer refractory to any medical or surgical therapy.

In view of the fact that jejunal ulcer (only one verified by operation) developed in only 3 cases out of at least 115 in which primary resection was done, I would call these results fairly satisfactory rather than disappointing.

RUDOLF NISSEN, M.D., New York.

ANDROGENS AND TESTICULAR IRRADIATION IN CANCER OF THE PROSTATE

To the Editor:—In discussion of a recent group of papers on prostatic cancer, Munger (THE JOURNAL, Dec. 5, 1942, p. 1120) said "The theorem of possible relationship of some factor in the testicle, probably androgenic, to carcinoma of the prostate was promulgated by me eight years ago. . . ." The quotation refers apparently to an oral promulgation rather than a publication, since no reference to it could be found in the papers of Dr. Munger cited before 1941 in the *Quarterly Cumulative Index Medicus*, a source which most workers accept as indicating publication in the clinical fields of medicine. The first paper proving any relationship between hormones and cancer of the prostate gland was published by Huggins and Hodges (*Cancer Research* **1**:293 [April] 1941), who showed that cancer of the prostate is activated by androgen injections and is inhibited by eliminating androgens through castration or neutralization of their activity by estrogen injection. These conclusions have since been confirmed in many published reports.

Some months ago the effect of irradiation of the gonads was described by Munger (*J. Urol.* **46**:1007 [Nov.] 1941), who concluded that "a study of several cases treated by testicular irradiation with [prostatic] resection seems to indicate that slightly better results were obtained than in those cases treated by resection and x-ray exclusive of the testicular application." This appears to me to be a fair statement of the results. Many observers have reported that extensive irradiation of the testes of animals does not eliminate androgen production by these glands, although the germinal epithelium is destroyed. Moreover, consonant with the experimental findings, the observations of Gutman (THE JOURNAL, Dec. 5, 1942, p. 1112) and of Huggins (*Ann. Surg.* **115**:1192 [June] 1942) indicate that orchiectomy has produced clinical benefit in cases of prostatic cancer in which testicular irradiation had been administered previously in sterilizing amounts with unsatisfactory clinical results. Roentgen irradiation of the testes appears to be inadequate as a therapeutic agent in human prostatic cancer.

CHARLES HUGGINS, M.D., Chicago.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

CHICAGO, Feb. 15-16. Sec., Council on Medical Education and Hospitals, Dr. H. G. Weiskotten, 535 North Dearborn Street, Chicago.

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, Jan. 2, page 71.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 15-16. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.

ARKANSAS: * *Eclectic.* Little Rock, June 3-4. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CONNECTICUT: * Hartford, March 9-10. *Endorsement.* Hartford, March 23. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * Washington, May 10-11. Sec., Commission on Licensure, Dr. George C. Ruhland, 6150 E. Municipal Bldg., Washington.

FLORIDA: * Jacksonville, June 21-22. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: March. Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

HAWAII: Honolulu, Jan. 11-14. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

IDAHO: Boise, Jan. 12-13. Dir., Bureau of Occupational Licenses, Mr. Walter Curtis, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, Jan. 19-21. Superintendent of Registration, Department of Registration and Education, Mr. Philip M. Harman, Springfield.

INDIANA: Indianapolis, Jan. 13-15. Sec., Board of Medical Registration and Examination, Dr. W. C. Moore, 301 State House, Indianapolis.

IOWA: * Iowa City, Feb. 22-24. Dir., Division of Licensure and Registration, Mr. H. W. Grete, Capitol Bldg., Des Moines.

KENTUCKY: Louisville, March 2-4. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

MAINE: Portland, March 9-10. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, March 9-12. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

MICHIGAN: * Ann Arbor and Detroit, June 11-13. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 100 W. Allegan St., Lansing.

MINNESOTA: * Minneapolis, Jan. 19-21. Sec., Dr. Julian F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSOURI: St. Louis, Feb. 16-18 and March 23-25. Sec., State Board of Health, Dr. James Stewart, State Capitol Bldg., Jefferson City.

MONTANA: Helena, April 6-7. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEVADA: *Reciprocity.* Carson City, Feb. 1. Sec., Dr. R. A. Petty, 215 N. Carson St., Carson City.

NEW HAMPSHIRE: Concord, March 11-12. Sec., Board of Registration in Medicine, Dr. Deering G. Smith, State House, Concord.

NEW MEXICO: * Santa Fe, April 12-13. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Bureau of Professional Examinations, Mr. H. L. Field, 315 Education Bldg., Albany.

OREGON: *Written.* Portland, Jan. 20-22. Exec. Sec., Miss Lorienne M. Conlee, 608 Failing Bldg., Portland.

SOUTH DAKOTA: Pierre, Jan. 19-20. Dir., Medical Licensure, State Board of Health, Dr. J. F. D. Cook, Pierre.

UTAH: Salt Lake City, June. Dir., Department of Registration, Mr. G. V. Billings, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, March 25-27. Sec., Dr. F. J. Lawliss, Richford.

WASHINGTON: * Seattle, Jan. 11-13. Dir., Department of Licenses, Mr. Thomas A. Swayze, Olympia.

WEST VIRGINIA: Charleston, March 1-3. Commissioner, Public Health Council, Dr. C. F. McClintic, State Capitol, Charleston.

WISCONSIN: * Madison, Jan. 12-14. Sec., Dr. H. W. Shutter, 425 E. Wisconsin Ave., Milwaukee.

WYOMING: Cheyenne, Feb. 1-2. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICUT: Feb. 13. Address State Board of Healing Arts, 1945 Yale Station, New Haven.

DISTRICT OF COLUMBIA: Washington, April 19-20. Sec., Commission on Licensure, Dr. George C. Ruhland, 6150 E. Municipal Bldg., Washington.

FLORIDA: DeLand, June 9. Sec., Dr. J. F. Conn, John B. Stetson, University, DeLand.

IOWA: Des Moines, Jan. 12. Dir., Division of Licensure & Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MICHIGAN: Ann Arbor and Detroit, Feb. 12-13. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

NEBRASKA: Omaha, Jan. 12-13. Dir., Bureau of Examining Boards, Mrs. Jeannette Crawford, 1009 State Capitol Bldg., Lincoln.

NEW MEXICO: Albuquerque, Feb. 1. Sec., Miss Pia Joerger, State Capitol, Santa Fe.

OKLAHOMA: Oklahoma City, May. Sec., Dr. Oscar C. Newman, Shattuck.

OREGON: Portland, Feb. 13. Sec., Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, Feb. 17. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

New York Endorsement Report

The New York Board of Medical Examiners reports 73 physicians licensed to practice medicine by endorsement from January 1 through May 23, 1942. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Stanford University School of Medicine		(1928)	California
Yale University School of Medicine		(1936), (1939), (1940)	N.B.M.Ex.
Georgetown University School of Medicine		(1939), (1940)	N.B.M.Ex.
Howard University College of Medicine		(1940)	N.B.M.Ex.
Northwestern University Medical School		(1907)	Oregon
Tulane University of Louisiana School of Medicine		(1939)	Louisiana
Johns Hopkins University School of Medicine		(1934) N.B.M.Ex.	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons		(1938), (1939)	Maryland
Harvard Medical School		(1932), (1939), (1940, 3)	N.B.M.Ex.
Tufts College Medical School		(1937), (1938)	N.B.M.Ex.
University of Michigan Medical School		(1938)	Michigan
Wayne University College of Medicine		(1937)	Michigan
University of Minnesota Medical School		(1938)	Minnesota
Washington University School of Medicine		(1922)	N.B.M.Ex.
University of Nebraska College of Medicine		(1933)	N.B.M.Ex.
Albany Medical College		(1939), (1940,3)	N.B.M.Ex.
Long Island College of Medicine		(1939) N.B.M.Ex.,	California
New York Medical College, Flower and Fifth Avenue Hospitals		(1938), (1939, 2), (1940, 3)	N.B.M.Ex.
New York University College of Medicine		(1935), (1939), (1940, 2) N.B.M.Ex.	
University of Buffalo School of Medicine		(1939), (1940, 3)	N.B.M.Ex.
University of Rochester School of Medicine and Dentistry		(1940, 2)	N.B.M.Ex.
Duke University School of Medicine		(1936), (1937), (1940)	N.B.M.Ex.
Eclectic Medical College, Cincinnati		(1939)	Penna.
Hahnemann Medical College and Hospital of Philadelphia		(1929), (1939)	Penna.
Jefferson Medical College		(1929)	Penna.
University of Pennsylvania School of Medicine		(1922)	Penna.
University of Pittsburgh School of Medicine		(1931)	Penna.
Woman's Medical College of Pennsylvania		(1935)	Penna.
Baylor University College of Medicine		(1937)	Texas
University of Vermont College of Medicine		(1929), (1937)	Vermont
Marquette University School of Medicine		(1940, 2), (1941)	N.B.M.Ex.
University of Toronto Faculty of Medicine		(1921)	N. Dakota
McGill University Faculty of Medicine		(1940)	N.B.M.Ex.
Medizinische Fakultät der Universität Wien		(1937), (1938)	N.B.M.Ex.
University of Cambridge Faculty of Medicine		(1938)	N.B.M.Ex.
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn		(1937)	N.B.M.Ex.
American University of Bierut School of Medicine		(1942)	N.B.M.Ex.
Licentiate of the Royal College of Physicians and Surgeons of Edinburgh and of the Royal Faculty of Physicians and Surgeons, Glasgow		(1939), (1940)	N.B.M.Ex.
University of Basel		(1939)	N.B.M.Ex.

Tennessee June Report

The Tennessee State Board of Medical Examiners reports the written examination for medical licensure held at Knoxville, Memphis and Nashville, June 17-20, 1942. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and eighteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
College of Medical Evangelists		(1942)	1
Howard University College of Medicine		(1941)	1
University of Minnesota Medical School		(1942)	1
Long Island College of Medicine		(1942)	1
University of Buffalo School of Medicine		(1924)	1
Jefferson Medical College of Philadelphia		(1941)	1
University of Pennsylvania School of Medicine		(1942, 2)	2
Meharry Medical College		(1942, 47)	47
University of Tennessee College of Medicine		(1941), (1942, 18)	19
Vanderbilt University School of Medicine		(1942, 42)	42
McGill University Faculty of Medicine		(1940)	1
American University of Beirut School of Medicine		(1940)	1

Ten physicians were licensed to practice medicine by reciprocity from June 13 through Aug. 5, 1942. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University School of Medicine		(1941)	Georgia
University of Kansas School of Medicine		(1939)	Kansas
University of Louisville School of Medicine		(1939)	Kentucky
University of Minnesota Medical School		(1927)	Minnesota
Washington University School of Medicine		(1919), (1940)	Missouri
University of Nebraska College of Medicine		(1936)	Nebraska
University of Oklahoma School of Medicine		(1938)	Louisiana
Meharry Medical College		(1911)	Illinois
University of Tennessee College of Medicine		(1941)	Mississippi

Michigan June Report

The Michigan State Board of Registration in Medicine reports the written examination for medical licensure held at Detroit, June 3-5, 1942. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Eighty-nine candidates were examined, all of whom passed. The following schools were represented:

School	PASSED Year Grad.	Number Passed
Loyola University School of Medicine	(1942, 2)*	2
Northwestern University Medical School	(1942, 4)*	4
Rush Medical College	(1941, 2)*	2
The School of Medicine of the Division of the Biological Sciences	(1941)*	1
University of Kansas School of Medicine	(1941)*	1
Johns Hopkins University School of Medicine	(1942)*	1
Tufts College Medical School	(1941)*	1
Wayne University College of Medicine	(1942, 66)†	66
University of Minnesota Medical School	(1941)*	1
St. Louis University School of Medicine	(1942)*	1
University of Oregon Medical School	(1941)*	1
Hahnemann Medical College and Hospital of Philadelphia	(1941)*	1
Jefferson Medical College of Philadelphia	(1941, 3)*	3
University of Pennsylvania School of Medicine	(1941)*	1
Vanderbilt University School of Medicine	(1941)*	1
Marquette University School of Medicine	(1942)*	1
Queen's University Faculty of Medicine	(1940)*	1

* Licenses have not been issued.

† These applicants received the M.B. degree and will receive the M.D. degree on completion of internship. Licenses have not been issued.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Death from Rocky Mountain Spotted Fever Caused by Bite of Wood Tick Allegedly Received in Course of Employment.—Prowse worked in the waste dump of a mine, parts of which were overgrown with foliage. On July 22 he told his foreman that while at work something had bitten him on the finger and that he had brushed it off. Apparently for the next few days he did not feel well and was "irritable and grouchy." On the 26th he became "ill" and was hospitalized on the 29th. On the 31st Rocky Mountain spotted fever was diagnosed, from which he died August 2. Alleging that Prowse's death was due to the bite of a wood tick suffered in the course of his employment, the widow instituted proceedings for compensation before the industrial commission of Utah. From an award in the widow's favor the employer appealed to the Supreme Court of Utah.

The sole question to be determined by this court, said the Supreme Court, is whether the evidence before the industrial commission was sufficient to sustain its findings that the workman received the fatal tick bite during the course of his employment. Rocky Mountain spotted fever is a disease of man directly traceable to a deadly virus carried by infected wood ticks. These infected transmitting agents attach themselves to man by biting. The virus becomes reactivated within several hours after ingestion of blood in the tick has begun, and it is then passed into the body of man. There are two types of infection in man—ambulatory and fulminating. The workman was diagnosed as having the latter and more fatal infection. The period of incubation within man covers a period of from two to fifteen days, depending on the severity of the infection, the resistance of the man and the locality of the bite. In cases of fulminating infections, the period of incubation is determined as from two to five days; the prodromal period is from two to three days in duration during which time the characteristic chilly sensations, backache and the like appear. These sensations first experienced by Prowse on July 26. Death occurs between the ninth and fifteenth day following infection. It is not infrequent that the site of the tick attachment cannot be found. Medical science has some basis for the belief that the virus of an activated tick may enter through the pores of the skin.

A physician called as a witness by the employer testified that in his experience no tick has ever bitten a man on the hand but that their tendency is to seek a locality on the body where they are not so apt to be brushed off. Because of this testimony the employer contended that the industrial commission could not properly find that the tick bite was suffered by the workman during the course of his employment, since such a finding is a mere surmise, conjecture, guess or speculation. The Supreme Court, however, adverted to the direct testimony of the employer's foreman that the deceased had complained to him of a bite on his finger during working hours. This, said the court, created a conflict in the testimony sufficient to justify the finding of the commission, regardless as to whether or not this court would have arrived at the same conclusion or inference from the testimony as was arrived at by the industrial commission. The duty of this court in the presence of conflicting evidence is to examine the record, and, unless we can say that as a matter of law the conclusion of the commission was wrong because only the opposite conclusion could be drawn from these facts, this court must affirm the finding of the commission.

The employer contended that there are instances in which, even though an opposite conclusion cannot be drawn, the commission cannot conclude that the accident arose in the course of the employment. This, it was argued, is the situation where the commission cannot from all the facts infer the ultimate fact that the accident occurred in the course of the employment with any more probability than that it occurred outside of the course of employment. "To infer," answered the court, means "to bring into, to bring forward" (Webster's International Dictionary, second edition). The very process of inference involves the process of one fact or a set of facts pushing forward in the mind the probability of the inferred fact. Sometimes the basic fact or facts from which the inference arises strongly urge to any reasonable mind the inferred fact. At other times, the process of inference is more tenuous. And true it is that, where the fact attempted to be inferred is pushed or carried out of the basic facts with no more urgency than some other fact, the inferences are said to be equal and cancel each other. Perhaps the more accurate way to state the proposition is that the mind in its natural functioning does not bring forward any fact from the underlying facts because, being in a condition of equipoise, no inferable fact is brought forward or pushed out of the underlying facts as a natural conclusion. The question arises, Have we such a situation in this case? The employer urged that testimony to the effect that wood ticks are found in the entire intermountain region in which the workman lived and worked, together with testimony to the fact that he went on a picnic in the mountains and swimming within the intermountain region, puts the mind in a condition of equipoise as to the event of the accident at which it must remain. But, said the court, from the fact that ticks are found in the entire intermountain region it does not follow that they are found in equal abundance all over the region nor that the facilities for the workman to contract them were equal in all the places he chanced to be in the intermountain region during any possible period of incubation. The facts were that Prowse's work took him into brush to an extent not ordinarily to be expected while at home, swimming or even on a picnic. Moreover, four witnesses testified to the actual presence of ticks at a point 3 miles from where Prowse worked. The conditions that existed in the locality where the witnesses saw the ticks were practically the same as the conditions at the place where the deceased worked. In view of these facts, we can assume that there were ticks where Prowse worked, thus tending to show the actual presence of ticks in the locality of Prowse's work in contradistinction to the entomologic fact which we all know that ticks exist throughout the intermountain region. But one further potent piece of evidence is sufficient in view of the evidence just recited to throw the mind off equipoise. It has been established that in cases of fulminating infection the period of incubation is from two to five days. Here Prowse became ill on July 26, the period of incubation extending back to the fifth day from that date, or to July 22, the date on which Prowse complained of a bite. During this period he was off work on July 24, a holiday. From the record it appears that he remained at home on this

day. The remaining days during this period of incubation he spent at his work, traveling between his home and work, and at home. There is nothing appearing of record which is intrinsically discrediting to the uncontradicted testimony of the witnesses nor is such testimony wholly from interested witnesses. Furthermore, the evidence as appears in the record not only carries "a measure of conviction" to the reasonable mind but is sufficient to throw the mind off equipoise, raising the inference that the deceased picked up the tick in the course of his employment.

For the reasons stated, the award of the commission in favor of the widow was affirmed.—*Salt Lake County v. Industrial Commission, 120 P. (2d) 321 (Utah, 1941).*

Harrison Narcotic Act: Unlawful Sale by Physician; Bona Fide Medical Practice.—The defendant, a practicing physician, was charged with a violation of the Harrison Narcotic Act in that he had unlawfully sold morphine sulfate, a derivative of opium. The evidence showed that the defendant had from time to time delivered morphine to certain persons without use of the order form prescribed by law and that the defendant gave no directions, either verbally or in writing, as to how the drug should be taken. The two morphine deliveries specifically set forth in the indictment were made at night in secluded places on the streets of Atlanta, Ga. As to one of these, witnesses for the government testified that it was made after dark in a secluded place on the street near a school building. Government officers watched while the sale and delivery was being made, the officers having furnished the $5 which was used by another person to purchase the morphine from the defendant. When the sale and the delivery had been consummated, the officers took possession of the morphine and arrested the defendant. The $5 was identified by serial numbers and dates as being the same money furnished by the officers, and a quantity of morphine was found in the defendant's possession. From a judgment of conviction, the defendant appealed to the U. S. circuit court of appeals, fifth circuit.

The defendant contended that the sales were made in connection with the bona fide practice of medicine. What constituted bona fide medical practice, the court said, must be determined on consideration of the evidence and attending circumstances. In the present case, the evidence was such that the jury could properly conclude that curbstone sales of morphine as charged in the indictment were not made in connection with a bona fide medical practice but that they were in fact unlawfully made. The evidence, the court concluded, made a case for the jury, and the trial court properly refused to direct a verdict in favor of the defendant physician. The court also found that there had been no error committed in the admission or exclusion of evidence during the trial, that the evidence was sufficient to support the verdict and that no reversible error existed. Accordingly the judgment of conviction was affirmed.—*Moore v. United States, 128 F. (2d) 887 (1942).*

Taxes: Exemption from Occupational Tax Law; When a Physician "Practices" His Profession.—The defendant was licensed to practice medicine in Louisiana in 1929 and immediately entered the United States Public Health Service and was assigned to the United States Marine Hospital, Mobile County, Ala., where he remained until his resignation from the service in June 1940. During that time he was for one year head of the department of venereal diseases, for five years he engaged in general surgery at the hospital and for the remaining period he engaged solely in the treatment of diseases of the eyes, ears, nose and throat. During this entire period his only remuneration from the practice of his profession was his salary from the government. In June 1940 he obtained a license to practice medicine in Alabama and opened an office in Mobile, specializing in diseases of the eyes, ears, nose and throat. The state brought suit against the defendant to recover certain license taxes alleged to be due it for the last half of 1940 and all of 1941, the time during which the defendant had been in private practice. From a judgment for the defendant, the state appealed to the court of appeals of Alabama.

The defendant contended that he was exempt from the payment of the taxes because of the following language of the statute: "Provided that the license imposed by this section shall not apply until such person shall have practiced his or her profession as long as two years." The court of appeals first pointed out that an exemption from license taxation under a constitutional or statutory provision is in derogation of common right and must receive a strict interpretation and no claim to exemption can be sustained unless it is clearly within the scope of the exempting clause. The existence of an exemption will not be presumed but must be clearly proved, and if there is any doubt the uncertainty will be resolved against the exemption. The plain purpose of the exemption quoted, said the court, was to aid the young practitioner in establishing himself in his profession. The court could not assent to the proposition that the defendant was not subject to the tax until he had engaged in private practice for as long as two years. The practice of a profession and private practice are not synonymous. In the opinion of the court, the defendant was practicing medicine when he was doing general surgery in the United States Marine Hospital. Medicine was his profession. Therefore he was practicing his profession within the language of the statute. Accordingly the court concluded that the circuit court had erred in denying the right of the state to recover the tax. Judgment in favor of the defendant was reversed and judgment was entered in favor of the state. Certiorari was denied by the Supreme Court of Alabama.—*State v. Sellers, 9 So. (2d) 19; 9 So. (2d) 20 (Ala., 1942).*

Chiropractors: Advertising as Evidence of Unlicensed Practice.—The defendant was charged with a violation of the Ohio medical practice act in that he advertised or announced himself to be a practitioner of medicine and surgery in one of its branches, to wit, chiropractic, before obtaining a certificate from the state medical board as required by law. The evidence showed that the defendant exhibited on the porch of his residence a gold lettered sign reading "J. D. Method, D.C." and that inside the vestibule was a "regular clock sign" reading "Doctor is in. Please be seated." The defendant admitted that these two signs were all the advertising he was doing "right now." From a verdict of guilty in the trial court, the defendant appealed to the court of appeals of Ohio, Lucas County.

The defendant contended that such evidence was not sufficient to prove him guilty beyond a reasonable doubt and furthermore that it at most tended to prove merely an intent to practice his profession and that intent alone was not evidence of criminal conduct. The court disagreed with this contention. Considering this evidence as a whole, said the court, it sufficiently appears that not only was Method intending to practice his profession but also he was actually so engaged and surely was advertising himself as practicing medicine. The finding of guilty of the offense charged was therefore sustained by the evidence, and the judgment of conviction was accordingly affirmed.—*State v. Method, 42 N. E. (2d) 1013 (Ohio, 1942).*

Society Proceedings

COMING MEETINGS

Annual Congress on Industrial Health, Chicago, Jan. 11-13. Dr. Carl M. Peterson, 535 North Dearborn St., Chicago, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Feb. 15-16. Dr. H. G. Weiskotten, 535 North Dearborn St., Secretary.

American Academy of Orthopaedic Surgeons, Chicago, Jan. 17-21. Dr. Myron O. Henry, 825 Nicollet Ave., Minneapolis, Acting Secretary.

Clinical Orthopaedic Society, Chicago, Jan. 18-21. Dr. Myron O. Henry, 825 Nicollet Ave., Minneapolis, Secretary.

Eastern Section, American Laryngological, Rhinological and Otological Society, Hartford, Conn., Jan. 15. Dr. Edward J. Whalen, 750 Main St., Hartford, Conn., Chairman.

Middle Section, American Laryngological, Rhinological and Otological Society, Detroit, Jan. 20. Dr. Voss Harrell, 2539 Woodward Ave., Detroit, Chairman.

Southern Section, American Laryngological, Rhinological and Otological Society, Chattanooga, Tenn., Jan. 28. Dr. Francis B. Blackmar, 1301 Broadway, Columbus, Ohio, Chairman.

Western Section, American Laryngological, Rhinological and Otological Society, Portland, Ore., Jan. 31. Dr. Irving M. Lupton, 1020 S.W. Taylor St., Portland, Ore., Chairman.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

12:449-508 (Sept.) 1942

Recent Advances in Photometric Clinical Chemistry. W. S. Hoffman, Chicago.—p. 449.
Underlying Principles and Minimal Standards of Laboratory Examination for Tubercle Bacilli. H. C. Sweany, Chicago.—p. 458.
Hemorrhagic Problems in Child Surgery. I. N. Kugelmass, New York.—p. 467.
Comparison of Tissue and Spirochetal Antigens in Complement Fixation Tests for Syphilis Based on Results Observed in the Washington Serologic Survey. J. A. Kolmer, Philadelphia.—p. 480.
Comparison of Methods of Analysis for Lead in Urine. W. R. V. Marriott, Pasadena, Calif.—p. 488.
*Subacute Monilia Endocarditis: New Clinical and Pathologic Entity. J. G. Pasternack, Staten Island, N. Y.—p. 496.

Subacute Monilia Endocarditis.—The recovery of yeast-like cells from the first blood cultures of a patient with subacute bacterial endocarditis caused Pasternack to carry out further studies and identification of the micro-organism. Monilia was subsequently proved to be the etiologic agent of the patient's illness. Within the last two years two strains of Monilia have been recovered from 6 cases of subacute endocarditis. In 5 of them the micro-organism was identified as Candida (Monilia) parakrusei and in 1 as Candida guillermondi. All the patients except the author's were diacetylmorphine addicts. Subacute endocarditis due to Monilia is a new clinical and pathologic entity. An analysis of the pathologic data of the observed cases discloses the following: The vegetations were engrafted on old sclerotic valves. In 2 cases the aortic valve was involved and in 1 the mitral. The spleen was greatly enlarged and showed massive infarcts. The kidneys showed multiple small infarcts. The brain showed meningeal and focal parenchymatous lesions. Blood cultures readily yielded a prolific growth of Monilia. The author's case presented an isolated focus of hemorrhagic infarction of the ileum, edema and petechiae of the rectal and urinary bladder mucosa.

12:509-544 (Oct.) 1942

*Enterobius Vermicularis in Appendix: Report of Study on 1,000 Surgically Removed Appendixes. J. R. Schenken and Emma S. Moss, New Orleans.—p. 509.
Efficiency of Various Types of Equipment Used in Collection of Blood for Transfusions: I. Needles and Adapters. L. W. Diggs, Memphis, Tenn.—p. 518.
Mitotic Activity in Uterine Leiomyomas. P. H. Hartz and M. J. Hugenholtz, Curacao, Dutch West Indies.—p. 523.
Urinary Phenols: I. Method of Determination. M. Volterra, New York.—p. 525.
Cor Biloculare with Transposition of Great Cardiac Vessels and Atresia of Pulmonary Artery: Phylogenetic and Ontogenetic Interpretation. J. I. Rossman, Chicago.—p. 534.

Enterobius Vermicularis in Appendix.—Schenken and Moss determined the incidence of Enterobius vermicularis in 1,000 consecutively removed appendixes. The patients were operated on at the Charity Hospital at New Orleans between July 5 and Oct. 14, 1937. The complete appendical content of the first 600 appendixes was delivered into a test tube and thoroughly emulsified in water. The specimen was centrifugated for one minute at about 500 revolutions per minute (group 1) and for the other 400 appendixes (group 2) the same procedure was employed except that centrifugation was repeated until the supernatant fluid was clear. Of all the appendixes 23.3 per cent were infected with E. vermicularis. In group 2, 42.1 per cent of the appendixes from white females and 38.3 per cent of the appendixes from white males were infected. The respective figures for Negroes were 10.1 and 12.8 per cent. The observations in group 2 are regarded by the authors as more accurate than those in group 1 because of the use of the improved technic.

Archives of Dermatology and Syphilology, Chicago

46:619-782 (Nov.) 1942

Dermatologists for the Army and the Navy. W. H. Guy, Pittsburgh.—p. 619.
*Vitamin Therapy in Dermatology and Syphilology. P. A. O'Leary, Rochester, Minn.—p. 628.
Phytopharmacologic Reactions of Blood Following Treatment with Sulfanilamide and Derivatives. D. I. Macht, Baltimore.—p. 635.
Generalized Moniliasis with Proved Pathogenicity: Report of Case. L. Tulipan and E. Muskatblit, New York.—p. 643.
Trichophyton Purpureum (Bang) and Trichophyton Gypseum (Bodin): Differentiation in Culture. A. E. Edgecombe, Evanston, Ill.—p. 651.
Unusual Sites of Lesions in Pellagra: Gangrene of Toe in One Case. T. J. Riordan, S. Gellis and A. M. Rubinowitz, New York.—p. 661.
Cutaneous Fistulas of Dental Origin. R. C. Wende and H. A. Solomon, Buffalo.—p. 665.
Parapsoriasis: Its Relation to Mycosis Fungoides and Tuberculosis: Review of Fifty-Two Cases. H. Montgomery and R. J. Burkhart, Rochester, Minn.—p. 673.
Pathogenesis of Synovial Lesions of Skin. A. Eliassow and S. B. Frank, New York.—p. 691.
Colloid Degeneration (Collagen Degeneration) of Skin. M. J. Reuter, Milwaukee, and S. W. Becker, Chicago.—p. 695.
Oriental Sore in United States: Report of Case. Mabel G. Silverberg and E. J. Henschel, New York.—p. 705.
Transparency Test for Differential Diagnosis of Plantar Warts. L. Goldman, Cincinnati.—p. 711.
Biologic False Positive Reactions for Syphilis Associated with Hyperproteinemia: Preliminary Report. L. Cardon and D. H. Atlas, with assistance of E. Aron, M. J. Brunner, S. L. Teitelman and J. Bunata, Chicago.—p. 713.
Ragweed Dermatitis Among Workers in Flour and Grain Industries. J. W. Jordon, P. C. Campbell and E. D. Osborne, Buffalo.—p. 721.
Cisternal Puncture: Favorable Report Based on Over Six Thousand Punctures. L. J. Alexander, E. C. Fox and A. G. Schoch, Dallas, Texas.—p. 725.
Use of Vitamin A in Keratosis Blennorrhagica: Successful Treatment with Massive Doses: Report of Case. F. C. Combes and H. T. Behrman, New York.—p. 728.
*Failure with Cryotherapy in Treatment of Acne Scars. H. M. Friedlander, Washington, Pa.—p. 734.
Varioliform Eruption from Sulfathiazole. A. G. Franks, Atlanta, Ga., and E. F. Traub, New York.—p. 737.

Vitamin Therapy.—O'Leary points out that certain cutaneous diseases are due to avitaminosis and that after the supplemental use of the necessary vitamin or vitamins, either by proper diet or by the administration of a synthetic form, the cutaneous signs of the disease disappear. The diseases include pellagra, ariboflavinosis or cheilosis, phrynoderma, pityriasis rubra pilaris, keratosis follicularis and the so-called seborrheids (nonpellagrous eruptions) recently described by Gross. Another group of diseases in which the results of vitamin therapy are less pronounced, do not appear in all cases and are less conclusive includes lichen spinulosus, keratosis pilaris, senile vaginitis, monilia infections, rosacea keratitis, psoriasis, acne cachecticorum and "dry skin." The evidence now indicates that under certain conditions vitamins to be effective must be in harmony or in combination, as, for example, in pellagra, in which nicotinic acid, thiamine and riboflavin is necessary to control the disease. The author believes that other diseases, such as psoriasis, may be completely controlled when the proper combination and ratio of vitamins is found. This would probably explain some of the discrepancies in the literature and differences of opinion as to the value of vitamin therapy in dermatology. No significant benefit has been obtained with vitamins in the various cutaneous manifestations of syphilis. The most pronounced benefits occur when a dermatosis is associated with constitutional signs of avitaminosis.

Cryotherapy in Treatment of Acne Scars.—Friedlander states that he noticed no improvement in the scars of acne treated with carbon dioxide slush. In 13 of the 20 patients treated the average number of treatments was thirty-seven. Cryocautery offers nothing that cannot be obtained with conventional, less time consuming and less painful methods.

Indiana State Medical Assn. Journal, Indianapolis

35:603-676 (Nov.) 1942

Role of General Practitioner in Present Industrial Hygiene Program. J. G. Townsend, Bethesda, Md.—p. 603.
Treatment of Pneumonia. N. Plummer, New York.—p. 608.
What Is Good Anesthesia? Comment Based on Twenty-Five Thousand Personally Administered Anesthesias. F. T. Romberger, Lafayette.—p. 613.
Injuries to Peripheral Nerves. J. F. Maurer, Brazil.—p. 620.

Journal of Clin. Endocrinology, Springfield, Ill.

2:615-670 (Nov.) 1942

*Syndrome Characterized by Gynecomastia, Aspermatogenesis Without Aleydigism and Increased Excretion of Follicle Stimulating Hormone. H. F. Klinefelter Jr., E. C. Riefenstein Jr. and F. Albright, Boston. —p. 615.

Clinical Evaluation of Estrone, Estradiol Benzoate and Diethylstilbestrol. H. W. Eisfelder, New York.—p. 628.

Oral Hormone Therapy in Anovulatory Bleeding. Grete Stohr, New York.—p. 633.

*Treatment of Acne with Orally Administered Estrogens. C. H. Lawrence and N. T. Werthessen, Boston.—p. 636.

Dosage of Female Sex Hormones, Estradiol and Anhydrohydroxyprogesterone by Sublingual Application. C. A. Joël, Basle, Switzerland. —p. 639.

Delayed Induction of Menstruation in Primary Amenorrhea: Case. J. M. Looney, Worcester, Mass.—p. 643.

Observations on Mechanism of Uterine Bleeding. R. B. Greenblatt, Augusta, Ga.—p. 645.

Schizophrenia in Hypogonad Man: Case. G. F. Sutherland and R. G. Hoskins, Worcester, Mass.—p. 647.

Influence of Methyl Testosterone on Muscular Work and Creatine Metabolism in Normal Young Men. L. T. Samuels, A. F. Henschel and A. Keys, Minneapolis.—p. 649.

Clinical Reviews in Andrologic Endocrinology: II. Treatment of Androgenic Failure. R. L. Pullen, J. A. Wilson, E. C. Hamblen and W. K. Cuyler, Durham, N. C.—p. 655.

Syndrome Characterized by Gynecomastia.—Gynecomastia, small testes, aspermatogenesis, evidence of normal to moderately reduced function of the Leydig cells, increased excretion of estrogenic substance and usually a reduced excretion of 17-ketosteroids were observed during the last four years at the Massachusetts General Hospital. Two similarly affected private patients were seen by Klinefelter and his co-workers. Estrogenic substance was increased to a degree comparable to that found in castrates. Testicular biopsies of 7 patients showed hyalinization of the seminiferous tubules and normal appearing interstitial cells. The examined mammary tissue of 4 patients showed some ductal hyperplasia with definite proliferation of the periductal connective tissue. It is probable that the gynecomastia is reversible. Testosterone propionate and progesterone have been tried without success; estradiol dipropionate caused further enlargement. Surgical removal of the breast is recommended for cosmetic reasons and, if carefully done, is an exceedingly satisfactory procedure. It seems unlikely that anything can be done to correct the aspermatogenesis. The studies support the view that the testis produces two hormones: androgen from the Leydig cells and x-hormone (inhibin) from the tubules. The gynecomastia is not due to hyperestrogenism or androgen alone; it may be due to the combination of androgen and lack of inhibin.

Estrogen Treatment of Acne.—Lawrence and Werthessen used estrogen in the treatment of acne of 14 women and 11 men. Only 3 of the women and 4 of the men were less than 20 years of age. The average age of the women was 25.8 years and that of the men 20. It seems unlikely, therefore, that spontaneous remission can be an important source of error in evaluating the results of estrogen therapy. The duration of the acne varied from one to thirty years. Seven of the women complained of severe dysmenorrhea, 8 of hypomenorrhea and 2 of menorrhagia. Thirteen had definite exacerbations of the acne at the time of menstruation. Diethylstilbestrol or ethinyl estradiol was taken orally. The initial dose of the former was 0.5 mg. daily until tolerance was determined. Medication of women was omitted four days before the predicted menstrual period and resumed forty-eight hours after menstruation had ceased. Ethinyl estradiol was given in daily doses of 0.15 mg. and increased to 0.3 mg. if the response was unsatisfactory. Fifteen of the 25 patients became entirely free from acne after two to six months of treatment, 2 whose treatment was intermittent became free in eight and nine months and the remaining 8 are still under treatment; all show improvement. All the female patients (but 1 with hirsutism) have shown a synchronous improvement, comparable to the response of the acne, in menstrual difficulties. The biologic and recent experimental evidence and the results of adequate estrogen therapy suggest that acne is caused by a disturbance of the normal functional balance between androgens and estrogens when the preponderance of the androgenic factor becomes sufficient to exert its specific acnegenic effect in a given individual.

Journal of Experimental Medicine, New York

76:401-496 (Nov.) 1942

Quantitative Alterations in Hyperemia Responses to Local Ischemia of Smallest Blood Vessels of Human Skin Following Systemic Anoxemia, Hypercapnia, Acidosis and Alkalosis. J. R. DiPalma, Brooklyn.—p. 401.

Unsaturated Fatty Acids in Dietary Destruction of *N,N*-Dimethylaminobenzene (Butter Yellow) and in Production of Anemia in Rats. P. György, R. Tomarelli, R. P. Ostergard and J. B. Brown, Cleveland.—p. 413.

Liver Injury, Liver Protection and Sulfur Metabolism: Methionine Protects Against Chloroform Liver Injury Even When Given After Anesthesia. L. L. Miller and G. H. Whipple, Rochester, N. Y.—p. 421.

Serologic Reactions of Protein Films and Denatured Proteins. A. Rothen and K. Lansteiner, New York.—p. 437.

Quantitative Studies of Photochemical Despeciation of Horse Serum: Approach to Problem of Intravenous Foreign Protein Therapy. J. P. Henry, Montreal, Canada.—p. 451.

Immunization of Fowls Against Mosquito Borne Plasmodium Gallinaceum by Injections of Serum and of Inactivated Homologous Sporozoites. P. F. Russell and B. N. Mohan, Coonoor, India.—p. 477.

Journal of Immunology, Baltimore

45:79-156 (Oct.) 1942. **Partial Index**

Correlation Between Anatomic Changes and Allergic State in Tuberculous Guinea Pigs. C. E. Woodruff and Ruby G. Kelly, Northville, Mich. —p. 79.

Influence of Nonspecific Protein on Heat Inactivation of Antibody to Pneumococcic Polysaccharide: I. Effect of Various Proteins on Heat Stability of Antibody. R. K. Jennings and L. D. Smith, Newark, Del.—p. 105.

Id.: II. Electrophoretic Investigation of Heat Inactivation of Antibody in Presence of Casein. Laura E. Krejci, R. K. Jennings and L. D. Smith, Newark, Del.—p. 111.

Specific Molecular Valence of Antigen and Antibody. S. B. Hooker and W. C. Boyd, Boston.—p. 127.

Journal of Nervous and Mental Disease, New York

96:369-492 (Oct.) 1942

Primary Melanoma of Central Nervous System. F. H. Mackay and E. F. Hurteau, Montreal, Canada.—p. 369.

Review of Symptomatology of Alzheimer's Disease. A. P. Bay and J. Weinberg, Alton, Ill.—p. 378.

Effect of Vitamin E on Muscular Dystrophies. B. J. Alpers, H. S. Gaskill and A. Cantarow, Philadelphia.—p. 384.

Electrofit in Treatment of Mental Disease. D. J. Impastato and R. Almansi, New York.—p. 395.

Wilson's Disease in Light of Cerebral Changes Following Ordinary Acquired Liver Disorders. R. W. Waggoner and N. Malamud, Ann Arbor, Mich.—p. 410.

Action of Pyridine and Some of Its Derivatives in Preventing Experimental Convulsions in Animals. L. J. Pollock and I. Finkleman, Chicago.—p. 424.

Laryngoscope, St. Louis

52:757-834 (Oct.) 1942

Electroencephalography in Relation to Otology. R. S. Schwab and R. Carter, Boston.—p. 757.

Encephalography in Otogenic and Rhinogenic Complications. H. Brunner, Chicago.—p. 768.

Mycosis of Middle Ear and Mastoid. J. J. Shea, Memphis, Tenn.—p. 784.

Impaired Hearing in School Children. S. J. Crowe, S. R. Guild, Ella Langer, W. E. Loch and Mary H. Robbins, Baltimore.—p. 790.

Vitamin Therapy Today. I. H. Jones, Los Angeles.—p. 805.

Review of Literature for 1941-1942. I. H. Jones and W. P. Covell, Los Angeles.—p. 815.

Minnesota Medicine, St. Paul

25:841-952 (Nov.) 1942

Use and Abuse of Sulfonamides. A. E. Brown, Rochester.—p. 859.

*Hypersensitivity to Thiamine Hydrochloride. W. S. Eisenstadt, Minneapolis.—p. 861.

Diagnosis and Treatment of Lichen Planus. C. W. Laymon, Minneapolis.—p. 863.

Infectious Mononucleosis. J. M. Ryan, St. Paul.—p. 871.

*Myasthenia Gravis. G. M. Constans and R. B. Radl, Bismarck, N. D. —p. 873.

Portal Cirrhosis. C. Vandersluis, Bemidji.—p. 880.

Tetany in the Severely Traumatized Newborn. W. R. Shannon, St. Paul. —p. 884.

Hypersensitivity to Thiamine Hydrochloride.—During the past year Eisenstadt encountered 2 cases of hypersensitivity to thiamine hydrochloride given parenterally. Even after the allergic reaction (local anaphylaxis in 1 and angioneurotic edema of the tongue, lips and eyelids and violent sneezing in 1) appeared, both patients subsequently tolerated thiamine hydrochloride orally without any untoward effects. Why this was so is hard to explain; possibly a rather high threshold of sensitivity to vitamin B_1 existed in these individuals and when it was taken

orally there may not have been a sufficiently high level at any one time to evoke an allergic reaction. The immunologic response of the patients was identical with that of well known sensitizing proteins. Constitutional reactions resulted only when the interval between injections exceeded one week. The possibility of an allergic reaction following parenteral administration increases as the interval between injections is lengthened. Intradermal tests were positive and passive transfer tests were negative. Five other similar cases have been reported.

Myasthenia Gravis.—Constans and Radl present 11 cases of myasthenia gravis in which the prostigmine test was a valuable diagnostic aid. In 2 a relationship to pregnancy is brought out and in 2 cold or grip. The response of a particular patient to one form of therapy or even to a combination of different therapeutic agents varies. Before prostigmine is used orally or otherwise, myasthenia gravis must be known to be present. Patients must realize the type of affliction they have and must live within their limits of physical endurance. A few simple aids for the improvement and comfort of the patient while undergoing treatment are an eye patch for the relief of distressing diplopia, spectacles with a darkened or frosted lens or the painting of the lens on the affected side with clear nail polish. Prisms may be successful. Aminoacetic acid and ephedrine have been of definite value. However, less expensive medication, such as ephedrine sulfate and prostigmine bromide, has also been of value. Atropine may be needed to overcome some of the drying effects of the prostigmine. Prostigmine methylsulfate may be needed subcutaneously or intramuscularly if serious symptoms occur. Aminoacetic acid and ephedrine have been of definite value and should be tried. The dose of aminoacetic acid must be large. The dose of ephedrine sulfate will vary from 1/8 to 3/8 grain (0.008 to 0.024 Gm.) two to three times a day. Like prostigmine, it is probably best to use small doses frequently.

Nebraska State Medical Journal, Lincoln

27:369-400 (Nov.) 1942

Recent Developments in Treatment of Severe Third Degree Burns. W. A. Wolff, J. E. Rhoads and W. E. Lee, Philadelphia.—p. 369.
Neurocirculatory Asthenia: Part II. F. W. Niehaus, Omaha.—p. 375.
Surgical Infections of Kidney. A. D. Munger, Lincoln.—p. 377.
Value of Salicylates as Compared with Sulfa Drugs. S. A. Swenson, Rushville.—p. 381.
Chemotherapy in General Surgery. F. C. Hill, Omaha.—p. 384.
Differential Diagnosis of Coma and Its Management: Neurologic Aspects. W. A. Muehlig, Omaha.—p. 386.
Medical and Hospital Obstetric and Pediatric Care for Wives and Infants of Men in Military Service.—p. 388.
Control of Dental Caries. J. R. Thompson.—p. 392.

New York State Journal of Medicine, New York

42:1983-2078 (Nov. 1) 1942

Chemotherapy in Ulcerative Intestinal Disease. J. A. Bargen, Rochester, Minn.—p. 2011.
Farm Accidents. K. Creevey, Cambridge.—p. 2016.
Prevention of Cinchophen Toxicity by Use of Vitamin K. W. B. Rawls, New York.—p. 2021.
*Finger Sucking: Serial Dental Study from Birth to Five Years. J. H. Sillman, New York.—p. 2024.
Allergy in Childhood: V. Choice of Drugs in Treatment of Asthmatic Attack. B. Ratner, New York.—p. 2029.
Deficiencies in Otologic Surgery. F. L. Lederer, Chicago.—p. 2033.

Finger Sucking.—On the basis of eight years of studying the dental aspects of 1,000 newborn infants, of more than two hundred models of their gum pads and a serial study of 50 children from birth to 5 years, which included from two to twenty sets of consecutive casts for each child, Sillman found that in all newborn infants the mandible is posterior to the maxilla, giving the chin the appearance of receding. From birth to 2 years the mandible grows forward faster than the maxilla. This contributes toward changing the features from those of a baby's face to those of a child's face. After 2 years this relationship of the jaws is generally maintained. Irregularities of the teeth are common in the first dentition, regardless of habit. Rotations of the incisors and molars are often present even before the teeth erupt. This point is extremely important to remember before finger sucking is said to be the cause of crooked teeth. Before and during eruption of the deciduous teeth, particularly the first incisors and first molars, the child's urge to bite is a physiologic process and usually passes uneventfully before the age of 3 years. During this time, heckling adults are apt to make suckers of nonsuckers or to accentuate the force of sucking and create a habit. Under such conditions displacement of the teeth will occur. A force of a certain intensity and duration will change the position of the teeth and the surrounding structures whether the force is applied with an orthodontic appliance or a finger, but one must be sure that such a force is operating. In any event the only area involved is the site of application, i. e. the anterior region. The force that maintains the mandible in its proper position is far greater than the force of the sucking. If by the age of 4 years the child persists in finger sucking, he should be helped to stop it. In instances in which sucking had caused crooked teeth, the displaced teeth corrected themselves spontaneously after the sucking was stopped.

Public Health Reports, Washington, D. C.

57:1559-1598 (Oct. 16) 1942

*Prevention and Treatment of Agranulocytosis and Leukopenia in Rats Given Sulfanilylguanidine or Succinyl Sulfathiazole in Purified Diets. S. S. Spicer, F. S. Daft, W. H. Sebrell and L. L. Asburn.—p. 1559.
*Incidence of Cancer in San Francisco and Alameda Counties, Calif., 1938. H. J. Sommers.—p. 1566.

Agranulocytosis and Leukopenia in Rats.—The nutritional experiments on rats of Spicer and his co-workers with sulfaguanidine and sulfasuxidine (succinyl sulfathiazole) have demonstrated that agranulocytosis, leukopenia and hypocellularity of the bone marrow will develop in animals given either drug in a purified diet. However, most of this blood dyscrasia can be prevented or successfully treated with whole dried liver or with certain liver extracts.

Incidence of Cancer.—The data obtained by Sommers from all physicians, hospitals and clinics in San Francisco and Alameda Counties, Calif., of all patients treated or observed for any malignant growth during 1938 show that of 7,859 patients 5,773 were residents and 2,086 nonresidents. There were 1,974 cancer deaths recorded, 173 of which were in resident cases not reported by doctors or hospitals. If these are added to the reported cases the total of resident cases is 5,946. The prevalence rate was 525.7 per hundred thousand residents. To a certain extent this high prevalence rate in the area is attributable to the unusually old population. The most frequent primary sites of cancer in males were the digestive tract, skin and buccal cavity; in women the breast, uterus and digestive tract. The cancer incidence per hundred thousand men was 416 and for women 611. The incidence rates for those first seen in the study year were 255 per hundred thousand men and 314 per hundred thousand women.

Radiology, Syracuse, N. Y.

39:383-512 (Oct.) 1942

*Irradiation Treatment of Cavernous Hemangioma, with Special Reference to So-Called Contact Roentgen Irradiation. H. D. Kerr, Iowa City.—p. 383.
Use of Over Penetrated Film Technic in Diagnosis of Cavities. S. N. Tager, Champaign, Ill.—p. 389.
Attempt at Roentgenographic Visualization of Thoracic Duct and Cisterna Chyli: Theoretical Considerations and Preliminary Observations. D. Kornblum, New York.—p. 395.
Roentgen Therapy of Hypertrophic Scars and Keloids. A. F. Hunter, New York.—p. 400.
Renal Rickets: Report of Case. L. J. Menville, L. Williamson and D. Mattingly, New Orleans.—p. 410.
Cystic Fibrosis of Pancreas with Observations on Roentgen Appearance of Associated Pulmonary Lesions. C. J. Attwood and W. H. Sargent, Oakland, Calif.—p. 417.
Relation Between Radiation Effects and Cell Viability as Indicated by Induced Resistance to Transplanted Tumors. Anna Goldfeder, New York.—p. 426.
Simple Technic for Cerebral Arteriography. J. E. Hemphill, Durham, N. C.—p. 432.
Roentgen Manifestations of Acute Infectious Mononucleosis in Abdomen. M. H. Poppel and S. Starr, New York.—p. 437.
Cyclotron as Medical Instrument. F. J. Hodges, Ann Arbor, Mich.—p. 440.
Concentration of P^{32} in Some Superficial Tissues of Living Patients. L. D. Marinelli and B. Goldschmidt, New York.—p. 454.
Simple Foreign Body Localization Device Applicable to Standard Fluoroscopes. E. R. Miller, San Francisco.—p. 464.

Irradiation of Cavernous Hemangioma.—Kerr treated 96 cases of hemangioma with radium plaques at a distance of 2 mm. and 49 with short distance contact roentgen therapy. Of the first series the results were good in 61, fair in 14 and poor

in 11; 10 were inadequately treated or followed. The respective figures for the other series are 34, 7, 3 and 5. The author thinks that not enough attention has been given roentgen therapy in the care of this condition. The slightly better results obtained with roentgen therapy are probably of no great significance, but when the apparatus is available its use is recommended.

Rhode Island Medical Journal, Providence

25:205-224 (Oct.) 1942

Medical Examiner System in Rhode Island. A. R. Moritz, Boston. —p. 205.
*Fluid Administration. R. O. Bowman, Providence.—p. 207.

Fluid Administration.—Fluid or water therapy, Bowman points out, must like all medical treatment be on a sound physiologic basis or definite harm will result. In general the patient whose illness is not complicated needs at least 2,500 cc. of fluid daily for water balance. If it must be given parenterally, 1,000 cc. of this amount should consist of isotonic solution of sodium chloride and 1,500 cc. of isotonic dextrose in water. If fever or profuse sweating is present the amount should be increased at least by another thousand cubic centimeters, preferably of the dextrose solution. After vomiting or gastric drainage the volume lost should be replaced by an equivalent amount of isotonic solution of sodium chloride. After diarrhea the volume excreted should be compensated by 1,000 or more cc. of isotonic solution of sodium chloride or 500 cc. of an alkaline solution and 500 cc. of saline solution. Hypertonic solutions should be used to relieve cerebral or pulmonary edema. They have no place in the treatment of dehydration. Whole blood should be given only when extra erythrocytes and hemoglobin, antibodies, platelets or fibrinogen are needed. For the prevention of shock sufficient concentrated plasma or plasma should be given to keep the hemoglobin or erythrocyte count from rising. If plasma is not available, hypertonic solutions of dextrose or sodium chloride are of some help; dextrose is better. Crystalloid solutions are of little value, once shock has developed. Fluids may be given by mouth, rectum and clysis. More important than the decision to give fluids is the decision of what kind of fluid and how much to give.

Southwestern Medicine, Phoenix, Ariz.

26:325-354 (Oct.) 1942

Malignant Lesions of Stomach. V. C. Hunt, Los Angeles.—p. 326.
Allergy and Acute Intestinal Disturbances. T. D. Cunningham, Denver.—p. 329.
Paranasal Sinusitis. M. P. Spearman, El Paso, Texas.—p. 332.
Conditions of General Interest. A. W. Egenhofer, Santa Fe, N. M. —p. 337.

Tennessee State Medical Assn. Journal, Nashville

35:375-416 (Oct.) 1942

Abortions and Progesterone. J. M. Brockman, Memphis.—p. 402.

35:417-454 (Nov.) 1942

*Use of Sulfonamides in Treatment of Gonococcic Conjunctivitis. G. J. Levy and P. M. Lewis, Memphis.—p. 417.
Results of Serologic Tests for Syphilis Among Selective Service Registrants in Tennessee.—p. 421.
*Carcinoma of Lung. H. E. Johnson and R. A. Daniel Jr., Nashville. —p. 426.
Anorectal Fistula. J. M. Stockman, Knoxville.—p. 433.

Sulfonamides for Gonorrheal Conjunctivitis.—Levy and Lewis treated 137 cases of gonococcic conjunctivitis with sulfonamides. Toxic reactions, with the exception of 1 early case, were practically negligible. Nausea was frequent, especially when sulfapyridine was administered. Slight cyanosis was common. Sulfapyridine and sulfathiazole are definitely superior to sulfanilamide in the treatment of gonococcic infections of the eye. Usually a cure may be expected within three days. Local treatment does not compare favorably with the internal use of the drugs. Every patient with gonococcic conjunctivitis should have immediate and adequate systemic treatment with sulfathiazole, and as an adjunct a 5 per cent sodium sulfathiazole solution should be instilled locally.

Carcinoma of Lung.—Johnson and Daniel state that pneumonectomy is the patient's only chance for cure from lung cancer. Radiation therapy is only a palliative measure. The duration of the life of patients not operated on or treated with radiation varies from a few weeks to about three years, during most of which time many are in distress. The operative mortality rate of pneumonectomy is about 30 per cent; this is not high when it is remembered that the disease is always fatal if pneumonectomy is not performed. Several cases in which carcinoma of the lung was cured for five or more years are cited. Success depends on the alertness of the medical profession in detecting the disease in its early stages.

Texas State Journal of Medicine, Fort Worth

38:417-474 (Nov.) 1942

Not by Guns Alone. W. B. Russ, San Antonio.—p. 423.
Diagnosis and Principles of Treatment of Dietary Deficiency Diseases. T. D. Spies, Birmingham, Ala.—p. 427.
Important Facts Concerning Diagnosis and Management of Lesions of Terminal Portion of Colon. L. A. Buie, Rochester, Minn.—p. 431.
Analysis of One Hundred and Three Consecutive Hysterectomies. J. R. Phillips and E. S. Sears, Houston.—p. 435.
Renal Tuberculosis. J. M. Pace, Dallas.—p. 439.
Radiation Therapy of Uterine Cancer. R. H. Crockett, San Antonio. —p. 444.
X-Ray Therapy in Treatment of Chronic Pyelonephritis. J. H. Smith, San Angelo.—p. 448.
Sulfanilamide Drugs in Ophthalmology and Otolaryngology. R. E. Windham, San Angelo.—p. 451.

Virginia Medical Monthly, Richmond

69:589-650 (Nov.) 1942

Virginia Laws of Interest to Doctors. R. T. Catterall, Richmond.—p. 589.
The Year's Activities in Medical Society of Virginia. R. W. Miller, Richmond.—p. 609.
Management of Recent Faciomaxillary and Mandibular Fractures. F. D. Woodward and G. S. Fitz-Hugh, Charlottesville.—p. 612.
Chronic Prostatitis: Clinical Review of 100 Cases in Which Fresh and Peroxidase Stained Secretions Were Studied. W. M. Brunet, N. D. Shaw, C. H. Reinhardt and Irene J. Anday, Chicago.—p. 619.
Traumatic Rupture of External Iliac Artery: Case Report with Discussion of Some Useful Procedure in Management of Vascular Injuries. L. M. Bell and J. A. Miller, Winchester.—p. 623.
Leiomyoma of Stomach: Case Report. N. Bloom and C. Williams, Richmond.—p. 627.
Less Discussed Uses of Sulfonamides. H. C. Davis, Bluefield.—p. 629.
Importance of Physical Examination in Diagnosis of Primary Bronchial Carcinoma. P. P. Vinson, Richmond.—p. 631.

War Medicine, Chicago

2:901-1076 (Nov.) 1942

Effort Intolerance in Soldiers: Review of 500 Cases. M. Jones and R. Scarisbrick, London, England.—p. 901.
Mortality in Penetrating Wounds of Abdomen in Civil Practice, with Particular Reference to Influence of Hemorrhage. R. M. Moore, and J. C. Kennedy, Galveston, Texas.—p. 912.
Chronic Exhaustion State in Test Pilots. J. H. Tillisch and M. N. Walsh, Rochester, Minn.—p. 917.
Electroencephalographic Study of 275 Candidates for Military Service. J. E. Harty, Erna L. Gibbs and F. A. Gibbs, Boston.—p. 923.
Psychiatric Induction Examination, with Review of Results of Examining 17,000 Selectees. D. J. Flicker, Camp Blanding, Fla.—p. 931.
Neuropsychiatric Examination of Recruits at United States Naval Training Station, Newport, R. I. C. L. Wittson, H. I. Harris, W. A. Hunt and P. Solomon, Newport, R. I.—p. 944.
*Specificity of Lecithovitellin Reaction in Diagnosis of Gas Gangrene Due to Clostridium Welchi. L. A. Weed, S. Minton Jr. and Eunice Carter, Indianapolis.—p. 952.
Mechanism of Reaction Between Lecithovitellin and Toxin of Clostridium Welchi. L. A. Weed, R. Forney and Eunice Carter, Indianapolis. —p. 960.
Gastroduodenal Disorders: Important Wartime Medical Problem. W. H. Dunn, New York.—p. 967.
Epidemic Keratoconjunctivitis. M. J. Hogan and J. W. Crawford, San Francisco.—p. 984.
*Sulfadiazine Therapy of Purulent Meningitis: Including Its Use in Twenty-Four Consecutive Patients with Meningococcic Meningitis. H. A. Feldman, Atlanta, Ga., L. K. Sweet and H. F. Dowling, Washington, D. C.—p. 995.

Lecithovitellin Reaction and Gas Gangrene.—Weed and his associates show that the reaction (opacity or a precipitate) of Clostridium welchi to normal human serum or lecithovitellin is not specific either for Cl. welchi or for its toxin. In their experiments the reaction was produced (undiminished) by the supernatant fluid from cultures of Cl. welchi after boiling for one hour—long after the lethal and the hemolytic factors were destroyed. The reaction may be prevented by monovalent antitoxin for Clostridium tetani and Clostridium septicum, normal human serum and tenth-molar phosphate buffer (p_H 7) and by

adjusting the p_H to 7.4 with normal sodium hydroxide. Cultures of Cl. welchi grown in Taylor and Stewart's casein medium, which does not permit production of type A toxin, give more rapid and definite lecithovitellin reactions than those grown in chopped meat broth. Uninoculated casein broth will give a positive lecithovitellin reaction when the p_H is lowered sufficiently. The degree of acidity necessary varies somewhat with the particular batch of medium used. The reaction is obtained with a wide variety of aerobes which cannot possibly be confused culturally or serologically with Cl. welchi. The reaction produced by the common aerobes may be prevented by monovalent antitoxin for Cl. welchi, Cl. tetani or Cl. septicum. The reaction can also be inhibited by normal human serum and by tenth-molar phosphate buffer (p_H 7). Therefore the reaction cannot be relied on as a rapid diagnostic method for detecting the presence of Cl. welchi toxin or antitoxin.

Purulent Meningitis.—The subjects of investigation by Feldman and his co-workers were 24 patients with meningococcic meningitis and 18 with purulent meningitis admitted during the past nine months to the isolation pavilion of the Gallinger Municipal Hospital and treated with sulfadiazine. Those with purulent meningitis were also given specific serum. The initial dose of the drug for adults consisted of 4 to 6 Gm., followed by 1 Gm. every four hours. Children were given half of an initial twenty-four hour dose and then daily approximately 1 grain per pound (0.14 Gm. per kilogram) of body weight. The drug was taken orally except by unconscious patients or patients who were vomiting severely. These were given the drug in the form of the sodium salt intravenously or subcutaneously. Treatment was terminated abruptly after the patient had been asymptomatic for about a week. The temperature of 18 of the 24 patients returned to and remained within normal limits within forty-eight hours after the first dose of sulfadiazine. Simultaneously with the fall of temperature the number of leukocytes decreased, the condition of the spinal fluid improved, the rash regressed rapidly and the patient generally improved. The temperature of 4 other patients who recovered came down more slowly, and improvement in general was more gradual. Twelve of the 24 patients were less than 2 or more than 30 years of age; the 2 who died were in the latter group, 1 a man of 44 and 1 a man of 53. Both were admitted in a severe state of acute alcoholic intoxication. The average level of sulfadiazine in the blood the day the temperature reached the base line and remained there was 8.2 mg. per hundred cubic centimeters, with a range between 3.7 and 17.6 mg. This refutes the idea that in patients with meningitis the blood level of a sulfonamide compound should be around 15 mg. Of 6 patients with influenzal meningitis 5 were infected with type B organisms. All were treated with sulfadiazine and homologous rabbit antiserum. Four who were more than 3 years of age made uneventful recoveries. The fifth patient, an infant of 7 months admitted with acute otitis media due to type B influenza bacillus, had been started on sulfapyridine prior to culture reports. The drug was continued, but in spite of adequate levels of the compound in the blood his condition became steadily worse and on the seventh day of therapy signs of meningitis developed. Treatment was begun with specific antiserum and sulfadiazine, but the patient did not rally. At necropsy there was evidence of petrositis on the same side as the otitis media observed on admission. The sixth of these patients was admitted with the diagnosis of a cerebrovascular accident on the basis of a history of a frontal headache for four days followed by hemiplegia. Lumbar puncture revealed purulent fluid containing numerous pleomorphic gram-negative bacilli. The diagnosis of meningitis and sinusitis was confirmed at necropsy. The experience with the 6 patients who had pneumococcic meningitis was as discouraging as it was encouraging in the two preceding groups. The pneumococcic meningitis of only 1 of the patients in this group was primary, but even she did not recover despite a slight improvement at the start of treatment. At necropsy a thick, adherent, basilar exudate was encountered, with no evidence of abscess or other foci of infection. On initial lumbar puncture 6 other patients with purulent meningitis had cell counts ranging from 600 to 3,200 per cubic millimeter, normal reduction of Benedict's solution and no organisms on smear or culture. Five of these patients had presumably organic cardiac murmurs, and necropsy revealed bacterial endocarditis without gross evidence of meningitis. The sixth patient was admitted in a deep stupor and died fourteen hours later. Necropsy revealed a massive abscess involving almost the entire left temporal lobe, for which neither the cause nor the mechanism could be explained.

Wisconsin Medical Journal, Madison

41:967-1066 (Nov.) 1942

Incidence of Atmospheric Mold Spores in Relation to Climatic Conditions in Milwaukee, 1935-1941. T. G. Randolph and T. L. Squier, Milwaukee.—p. 987.
Bronchitis. C. F. Burke, Madison.—p. 991.
Contact Infections in Childhood, Particularly Tuberculosis. K. E. Kassowitz, Milwaukee.—p. 995.
Epilepsy in Childhood. M. G. Peterman, Milwaukee.—p. 1001.
Treatment of Vaginitis in Children. T. K. Brown, St. Louis.—p. 1008.

Yale Journal of Biology and Medicine, New Haven

15:1-138 (Oct.) 1942

*Clinical Fetal Electrocardiography. A. V. N. Goodyear, A. J. Geiger and W. M. Monroe, New Haven, Conn.—p. 1.
Enzymatic and Mechanical Properties of Muscle Proteins. W. A. Engelhardt, Moscow, Soviet Union.—p. 21.
Obtaining Plasma from Birds. W. J. McFarland, R. Tennant and A. A. Liebow, New Haven, Conn.—p. 39.
Intranasal and Intraperitoneal Infection of Mouse with Coccidioides Immitis. M. Tager and A. A. Liebow, New Haven, Conn.—p. 41.
Educational Opportunities in School Health Examinations. Claire Burton Reinhardt and I. V. Hiscock, New Haven, Conn.—p. 61.
Silk, Catgut and Wound Infections. J. Burke, Buffalo.—p. 73.
Critical Evaluation of Pseudoisochromatic Plates and Suggestions for Testing Color Vision. J. R. Gallagher, Constance D. Gallagher, Andover, Mass., and A. E. Sloane, Boston.—p. 79.
The Early New England Doctor: Adaptation to Provincial Environment. M. S. Beinfield, New Haven, Conn.—p. 99.

Clinical Fetal Electrocardiography.—Goodyear and his co-workers used a standard portable amplifier type electrocardiograph in conjunction with a single stage resistance coupled preamplifier with abdominal leads to take 181 fetal electrocardiograms. The results were positive in 87 per cent. The electrocardiographic examinations were made on 154 gravid women pregnant for four or more months. The technic proved helpful in the clinical solution of a variety of obstetric problems and in detecting multiple pregnancy. The fetal heart rate and such factors as the duration of pregnancy, maternal heart rate or the sex of the fetus were not correlated. The amplitude of the fetal electrocardiogram bore no relation to maternal size or to the age and size of the embryo except practically at term, when the fetal deflections usually became larger. The electrocardiographic diagnosis of fetal position was fairly successful with the abdominal lead combinations employed but showed no advantage over usual clinical methods. The practical application of fetal electrocardiography is not primarily for the diagnosis of pregnancy, as the biologic tests answer this question earlier and with fewer false negative results, but rather in the ability of a positive electrocardiogram to reveal immediately that the fetus is alive when fetal movements and heart sounds are imperceptible. In this respect a positive electrocardiogram is more significant than a positive biologic test, as the latter depends on the presence of chorionic tissue and may remain positive for a week or two after the death of the fetus. The graphic method will detect multiple pregnancy earlier than roentgenography. Fetal electrocardiography has proved valuable in differentiating between cephalic, breech and perhaps transverse presentations. Unusual variations in the fetal heart rate or rhythm may suggest fetal abnormalities of distress, and a fetal wave lasting longer than 0.04 second may indicate congenital intraventricular block. The effects of drugs, anoxia, toxemia, anesthesia and labor on the fetal heart action can probably be conveniently studied by this method. The detection of the action current of the fetal heart in utero during the second and third months of gestation would be important, as it is at this time that the problem of ectopic gestation is most troublesome. Such further development is largely a technical matter and offers a challenge to ingenuity.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

15:273-306 (Oct.) 1942

Radiographic Stereoscopy. D. B. McGrigor.—p. 273.
Problems of Postwar Reconstruction in Radiology: Future of the Specialties. G. Jefferson.—p. 283.
What May We Expect from Physics? W. V. Mayneord.—p. 286.
Regional Radiodiagnostic Service. C. G. Teall.—p. 289.
Radiologic Education of the Future. H. K. G. Hodgson.—p. 292.
Radiotherapeutic Education of the Future. G. F. Stebbing.—p. 294.
Radiotherapy and the Cancer Act. R. Paterson.—p. 297.
Comparison of Action of X and Gamma Radiation on Fibroblasts. Edith Paterson.—p. 302.

British Medical Journal, London

2:445-472 (Oct. 17) 1942

Blood Transfusion in Soviet Union. A. Bagdasarov.—p. 445.
*Comments on Epidemic of Hepatitis. P. Evans.—p. 446.
*Inpatient Treatment of Civilian Neurotic Casualties: Report on 100 Cases Treated in Emergency Medical Service Neurosis Center. W. S. Maclay and J. Whitby.—p. 449.
*Cure of Scabies and a New Remedy. G. H. Percival.—p. 451.
Benzyl Benzoate in Treatment of Scabies: Comparison of Effects of Aqueous and Spirit Emulsions. K. C. Mallen.—p. 452.
Treatment of Varicose Veins in Soldiers. E. L. Farquharson.—p. 453.

Epidemic of Hepatitis.—Evans reports the occurrence between October 1939 and June 1942 of 65 cases of epidemic hepatitis in a hospital among children and nurses. The hospital cared at one time for as many as 120 children and a variable number of adults. The infectious hepatitis became endemic in the hospital early in 1940 and the epidemic started the following winter. It gradually subsided in the next year and a half, but the frequent introduction of young nurses and children into the community is likely to maintain the infection and form a reservoir from which the disease can be distributed to other places. Infection is usually transmitted from case to case, but abortive cases are probably important links in the chain of infection. Young children and senior nurses were less susceptible than older children and junior nurses. The incubation period was usually about a month, but shorter and considerably longer periods are possible. The duration of infectivity is uncertain. Several weeks of invalidism may often follow the infection. The blood sedimentation rate may remain elevated many weeks after a mild attack. Relapse and second attacks are uncommon but have been recorded. The mode of transmission in the epidemic, as in most, appeared to be aerial and perhaps also by contagion. The frequency with which nurses became infected by nursing patients is striking when compared with the rarity with which patients in bed infected other patients and suggests the possibility of the acquisition of the virus from feces or urine. Usually a direct communication could be traced from case to case; at times an abortive case seemed to be the cause. Healthy carriers have been suggested as playing an active part.

Inpatient Treatment of Neurotic Casualties.—Maclay and Whitby report the results of the first hundred patients (whose long continued neurosis made them unfit for work) who were treated in an emergency medical service neurosis center between July 1941 and January 1942. Their average age was 45, revealing that the stresses of war fall more heavily on older persons. All had been closely exposed to bombing, which resulted in some physical injury to 50. Severe mental stress, such as loss of husband, wife or children, loss of home or business or being buried for hours had been endured by 86. The average duration of incapacity for the 100 patients before admission was seven months. The factors responsible for the persistence of symptoms appeared to be fear of exposure to another severe experience in 39 instances, domestic and financial factors in 42, pension considerations in 13, the illness helping to solve a preexisting problem in a few, physical factors in 24 and physical illness in 11. The foregoing factors were rarely single. The most important symptoms were anxiety states in 37 instances, hysteria in 25, depression in 22, physical in 11 and schizophrenia in 2; 3 patients left before they were fully investigated. One third of the patients left the hospital by the end of a month, one half by two months and two thirds by three months. The best results were obtained by those who recovered quickly. The results suggested that the patients had been awaiting specialized treatment such as can be rendered in a hospital and could not have recovered without it. Of the patients who showed no change, 2 suffered from schizophrenia and 5 from a physical illness which could not be expected to improve; thus only 12 were not benefited by the psychiatric treatment. In 57 the onset of the illness was wholly due to the precipitating incident and in another 18 it was due to the incident but there were previous predisposing personality characteristics which did not amount to a neurotic illness. The others were regarded as instances of neurotic relapse or aggravation of preexisting physical illness. The treatment adopted was that ordinarily used in psychiatric practice: persuasion, explanation, reeducation, removal of symptoms by suggestion and occupational and physical therapy. The important feature was an assessment of the factors responsible for the persistence of the illness and their removal whenever practicable. Practical difficulties allowed only 36 patients to be followed up. This revealed that after an interval of six months the estimated prognosis of 26 corresponded to that at discharge, of 5 it was better and of 5 not as good. Specialized inpatient treatment of neurotic casualties appears to be well justified by the results.

New Remedy for Scabies.—Percival used tetraethylthiuram monosulfide for treating 50 patients with scabies. It was nonirritant when applied as a pure powder and cutaneous idiosyncrasy was not encountered. It was curative in a 5 per cent liquid preparation; 25 per cent tetraethylthiuram monosulfide, 10 per cent of polyglycerol ricinoleate and 65 per cent of industrial methylated spirit. One part of this oil was added to four parts of water immediately before use. The 25 per cent concentration remained stable at room temperature but crystallized at a lower temperature. Gentle heating redissolved the crystals. The diluted oil separates and thus the required 5 per cent dilution should be prepared just before use. For cure the preparation was rubbed over the whole body, with the exception of the head, face and neck, twice a day for three days.

Journal of Laryngology and Otology, London

57:337-352 (July) 1942

Atrophic Rhinitis: Treatment of Atrophic Rhinitis with Estrogenic Compounds. I. S. Hall and I. A. M. Macleod.—p. 337.
Nature of Valvular Action (Passive Opening) of Eustachian Tube in Relation to Changes of Atmospheric Pressure and to Aviation Pressure Deafness. J. E. G. McGibbon.—p. 344.

Lancet, London

2:413-444 (Oct. 10) 1942

Early Diagnosis of Pulmonary Tuberculosis. R. R. Trail.—p. 413.
*Proflavine Powder in Wound Therapy. G. A. G. Mitchell and G. A. H. Buttle.—p. 416.
*Nicotinic Acid in Treatment of Angina Pectoris. F. J. Neuwahl.—p. 419.
Diagnosis of Coma in Cerebrospinal Fever with Diabetes. L. Cole.—p. 421.
Immunization with T. A. B. in Outbreak of Paratyphoid Fever. E. C. Dax and Doris M. Stone.—p. 422.
Bilateral Congenital Subluxation of Acromioclavicular Joint. J. Grieve.—p. 424.
Corrosive Pyloric Stenosis Without Esophageal Involvement. D. P. Dengenhardt and R. G. Henderson.—p. 425.
Sperm Survival in Rubber Sheaths. J. Tynen and R. M. Ranson.—p. 425.
Peripheral Nerve Palsies Following Intramuscular Injections of Sulfonamides. J. St. C. Elkington.—p. 425.

Proflavine Powder in Wound Therapy.—Proflavine powder was tried by Mitchell and Buttle in the treatment of eighty wounds that proved intractable to chemotherapy. Experimental work has shown that the substance was relatively nontoxic and had a strong bactericidal effect on many organisms. Various forms of treatment, apart from routine sulfonamide therapy and closed plaster, were tried in the 80 resistant cases. Failure of the methods led to the dusting of proflavine sulfate powder into the wounds. The amount of proflavine used never exceeded 2 Gm., and usually only about 0.5 Gm. or less was employed. This depended on the size of the lesion. It was introduced into cavities by a small Volkmann's scoop or the end of a blunt dissector, or in extensive wounds it was dusted over the entire surface and evenly distributed with a spatula or scalpel handle. It was never employed more than two or three times; four to twenty-eight days elapsed after each appli-

cation. When used prophylactically the amount varied according to the size of the lesion but was usually about 0.25 Gm. mixed with 2 to 5 Gm. of powdered sulfanilamide. The use of the proflavine has resulted in beneficial results in almost every instance. When staphylococci were the infecting organisms, proflavine has proved more efficient in controlling or eliminating the infection than any other drug so far tried, and the response of many wounds with mixed infections has also been good. With one exception there has been no interference with healing. The dressings were usually painless, and no general toxic manifestations have been observed.

Nicotinic Acid and Angina Pectoris.—Neuwahl treated 6 patients suffering from angina pectoris with niacin and the results appear to be remarkably uniform and lasting. Oral administration of the drug caused a noticeable decrease in the number and the severity of attacks in several patients; in others the effect was transient, possibly because absorption or interaction of chemical substances in the gastric secretion was interferred with. Intravenous administration heightened the efficacy of the drug. Therefore to obtain equal conditions oral administration was discontinued and a drip infusion of a 0.05 per cent solution of niacin was chosen to overcome differences in susceptibility. One infusion of 100 to 300 mg. of niacin produced as a rule a remarkably beneficial result, which was maximal after twelve to twenty-four hours. Further infusion seemed to cause a definite stabilization in the condition of the patients, who became free from anginal attacks after several weeks. The worst affected patients reacted best. Usually six infusions were sufficient. The symptoms of the 6 patients have completely or almost completely regressed for three to seven months after the course of treatment was completed; 3 have actually resumed heavy manual work.

Schweizerische medizinische Wochenschrift, Basel

72:505-532 (May 9) 1942. **Partial Index**

Psychiatry in Consulting Hours of Medical Practitioner. J. E. Staehelin. —p. 505.
*Drug Fever and Chills Due to Sulfathiazole: Chemospecificity, Clinical Diagnosis and Prevention. S. Moeschlin.—p. 510.
Vertebral Fractures Due to Muscular Traction. W. Jaeger.—p. 513.
*Clinical Significance of Arcus Lipoides (Arcus Senilis) Corneae. F. Rintelen.—p. 515.
Proteases in "Acidoglobulin" Fraction of Various Plasmas and Their Possible Role in Thrombin Formation. R. Feissly.—p. 516.

Drug Fever and Chills Due to Sulfathiazole.—Moeschlin reports 6 patients who developed drug fever in connection with sulfathiazole medication. Tolerance tests demonstrated that the fever was the result of specific sensitization. This sensitization, however, did not apply to other sulfonamide derivatives. Patients who have become sensitized to sulfathiazole may react with decided chills to the renewed administration of even small doses of the drug. These chills, together with high temperatures, increased leukocyte count and accelerated blood sedimentation may simulate septic conditions. Absence of granulations in the neutrophils indicates drug fever in cases in which the diagnosis is doubtful. In cases in which drug fever is suspected, the sulfanilamide preparation should be discontinued or should be replaced by another of the sulfa drugs, because a patient sensitized to one of these compounds may tolerate others. By ascertaining the sulfa content of the blood, it could be demonstrated that rise in temperature appears a short time after the offensive compound enters the blood stream. Drug fever produced by sulfathiazole is sometimes accompanied by corneal infiltration, marginal phlyctenae and glossitis, but these are of short duration. Existence of a drug fever should be investigated, when, in the course of treatment with sulfa drugs, no reduction in temperature is effected in the course of a few days.

Clinical Significance of Arcus Lipoides (Arcus Senilis) Corneae.—Question has been raised whether the presence of a lipoid ring in the cornea suggests the existence of similar pathologic processes in other parts of the body. It has been suggested that arcus senilis of the cornea makes arteriosclerosis probable. Rintelen investigated the problem on a large necropsy material. The eyes of 600 comparatively fresh cadavers were inspected without optic aids for the presence of the senile arch. A noticeable lipoid ring was detected in 214 cases. Examination of the entire vascular system of the 214 cadavers disclosed that 66 (31 per cent) had no signs of arteriosclerosis; 97 (45 per cent) had a moderate sclerosis of the entire or of a part of the arterial vascular system; only 51 (24 per cent) had a severe sclerosis, particularly in the large vessels. No lipoid ring was seen in 39 of those who had reached an age of more than 60 years, but 13 (33 per cent) had a severe arteriosclerosis, which in 7 had been the actual cause of death. The lipoid ring was found 4 times in persons under 50 and none of these had arteriosclerosis. There is apparently no evidence of a close relationship between lipoid infiltration of the cornea and arteriosclerosis. This is not surprising, when it is considered that the lipoid ring of the cornea is an aging phenomenon with usually dominant hereditary transmission, whereas arteriosclerosis is an extraordinarily complex pathologic process.

Revista Clínica Española, Madrid

5:299-394 (June 15) 1942. **Partial Index**

Role of Liver in Intermediate Metabolism. F. Grande Covián.—p. 299.
Studies on Lathyrism. C. Jiménez Diaz and F. Vivanco.—p. 310.
Early Diagnosis of Acute Perforations of Gastroduodenal Ulcers. A. G. Barón.—p. 326.
*Evaluation of Oncotic Pressure in Pathogenesis of Edemas. E. Juncadella Ferrer.—p. 342.
Gastric Acidity in Patients with Gastroduodenal Ulcer. P. de la Viesca and J. Fernández Pleyan.—p. 355.
*Four Cases of Asthma from Sensitization to Cimex Lectularius. C. Lahoz and L. Recatero.—p. 361.

Oncotic Pressure in Pathogenesis of Edema.—Juncadella Ferrer studied the relation between oncotic pressure and edema, the levels of oncotic pressure which by themselves can be regarded as causing edema and the involvement of the alteration of the oncotic pressure in edemas observed in different syndromes and diseases. The protein formula and the oncotic pressure were determined in 401 cases in 136 of which edema existed at the time of determination. Numerous examinations were made on the edema fluid and on the blood volume. Clinical studies demonstrated that a definite connection exists between oncotic pressure and edema. The edema increases proportionately to the decrease in pressure. At a pressure below 15 cm. of water edema is a necessary result, and it is frequent when the pressure is below 25 cm. In such cases the decrease in pressure alone suffices to explain the edema. At pressures above this level edema becomes consistently rarer and other eliciting and contributing factors must be searched for. Oncotic pressure values above 40 cm. of water are normal, so that if edema develops with such pressures other factors are responsible. In secondary anemia edema is encountered in the presence of normal or only slightly reduced oncotic pressure values. In the edemas of leukemia the oncotic pressure factor likewise plays an unimportant part. In the edemas of cardiac patients the oncotic pressure plays a variable role; it is apparently not the primary causal factor but an important additional factor. Acute glomerular nephritis is accompanied by high oncotic pressure, and the edemas developing cannot be ascribed to it. In pernicious anemia the oncotic pressure seems to play an auxiliary rather than a primary role in the development of edema. The edemas of chronic glomerular nephritis exist in the presence of widely varying oncotic pressures. In serum disease edema develops in the presence of extremely low oncotic pressure values; that is, in these cases edema is obligatory. During nephrosis and amyloidosis the edemas are characterized by a low oncotic pressure.

Asthma from Sensitization by Bedbugs.—Lahoz and Recatero describe 4 cases of asthma which they could trace to sensitization by bedbugs. Three of the 4 patients had seasonal asthma, and the possibility of sensitization by pollen was considered. All 3 improved when they changed their residence. The improvement when living in homes not infested with bedbugs and still more the experience in the open air make the authors reject sensitization to pollen. This was further confirmed by negative skin reactions to pollens. Sensitization to spores of Tilletia could also be ruled out by negative skin reactions. Routine intradermal tests gave slightly positive reactions to bacterial substances and completely negative reactions to fungi, pollens, house dust, wool, feathers, hair and the like. Tests made with extracts of bedbugs gave strongly posi-

tive reactions whereas the same extracts were negative in persons with other forms of allergy and in healthy persons. The patients were advised to remove the bugs from their homes by thorough cleaning, repainting and, if possible, change of furnishings. Treatment consisted in progressively increasing injections of extract of cimex lectularius. Two of the 3 patients passed the summer of 1941 without attacks, and in the third an equally favorable result is hoped for, although the injection of the maximal dose elicited a severe local reaction and an attack of asthma. A secondary sensitization of the fourth patient to bedbugs could be demonstrated. The authors consider that the odor, the bite or the contact with the insect or its excretions may be responsible.

Beiträge zur klinischen Chirurgie, Berlin

172:161-304 (Aug. 23) 1941. **Partial Index**

*"Traumatic Cholecystitis": Development, Clinical Significance and Recognition as Traumatic Sequel. M. Biebl.—p. 161.
Pancreatic Calculi in Course of Dyskinesia of Extrahepatic Bile Passages. H. Griessmann.—p. 230.
Mustard Gas Poisoning in Four Children: Clinical Contribution to Problem of Mustard Gas Poisoning. W. Osterchrist.—p. 240.
Injection Treatment of Hemorrhoids According to Blond and Hoff. H. Wille-Baumkauff.—p. 255.
Malignant Testicular Tumors. J. von Szeleczky.—p. 265.

Traumatic Cholecystitis.—Biebl observed 3 cases of biliary disorders which had occurred in connection with trauma. A railroad worker aged 22 was thrown against a crank, the impact striking the epigastric region. He experienced immediately a severe pain in the gastric region which was intensified on movement and on deep breathing. The pain radiated toward the right scapula. The patient later collapsed and was brought to the hospital. Laparotomy disclosed that the gallbladder was torn away from the liver bed. The bladder was removed. The second patient was a man aged 54 who had fallen from a bicycle. At operation two days later there was found peritonitis caused by tears in the small intestine. An intestinal resection was performed. Three weeks later the patient was subjected to a cholecystectomy because of symptoms of acute cholecystitis. The removed gallbladder presented a circumscribed mucosal tear in the fundus of the gallbladder. The wall in the region of the tear was necrotic but perforation did not take place. Colon bacilli apparently had entered the gallbladder and had caused a cholecystitis. The third patient was a man aged 52 who had been in an automobile accident and had sustained a patellar fracture. Suture of the patella was followed by suppuration of the knee. The patient was not aware of having sustained an abdominal trauma, but five weeks after the accident there suddenly developed an acute cholecystitis which necessitated a cholecystectomy. The gallbladder contained 2 calculi. The thickened wall in the region of the corpus was found to contain numerous intramural abscesses. In the region of the fundus there was an inflamed mucosal flap, and a portion of the wall was denuded of mucosa. It is suggested that streptococci which produced the mural abscesses had found a breeding place under the torn off mucosal flap and that the postoperative suppuration of the knee was probably a hematogenous result of the cholecystitis. The mucosal lesions in cases 2 and 3 were probably caused by trauma. The resulting cholecystitis therefore may be designated as "traumatic cholecystitis."

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

108:667-796 (April 24) 1941. **Partial Index**

Behavior of Reticuloendothelial System in B_1 Hypovitaminosis. I. Gaál and M. Szabó.—p. 667.
Effect of High Temperatures on Central Regulation of Respiration. A. Hámori.—p. 676.
Effect of Liver Extract Preparations on Blood Catalase. G. Kabelitz.—p. 700.
Blood Diastase and Spleen. G. Papayanopulos and S. Thaddea.—p. 708.
"Paradoxal Digitalis Effect": Contribution to Relationship Between Chemical Constitution and Biologic Action of Cardiac Glucosides. H. Oettel.—p. 713.
*Fragility of Blood Vessels in Internal Diseases. W. Schaefer.—p. 725.
*Counting of Thrombocytes. Elisabeth Meister.—p. 742.
*Animal Experiments on Problem of Embolism: Special Consideration of Total Number of Emboli. W. Hachmeister.—p. 780.

Fragility of Blood Vessels in Internal Diseases.—Schaefer investigated the incidence of the impairment of the vascular wall in internal diseases, using the vascular fragility test of Sack. A certain negative pressure is exerted by means of a suction cup on the small cutaneous vessels until vascular tears appear. The author reports observations on 97 persons, of whom 14 were healthy. The vitamin C content was determined in order to rule out its influence on vascular fragility. It was found that in the majority of the cases there was a vitamin C deficiency. Only in 10 out of 97 there was no vitamin C deficiency. The patients were given daily a certain quantity of vitamin C until 50 per cent of it was eliminated in the urine. This is regarded as an indication of saturation. The vascular fragility test of Sack was employed before and after saturation with vitamin C. The test is suitable for the quantitative determination of vascular fragility. An increase in vascular fragility is observed in infections and inflammatory diseases, in diseases of the vascular system and in case of toxic impairment of the vascular wall by arsenic. There is no impairment of the vascular wall in leukemia, anemia and polyglobulism.

Counting of Thrombocytes.—The fact that no less than sixty-one methods have been described suggests the inadequacy of the individual methods. Meister investigated methods which are fundamentally new, have been evaluated favorably and meet clinical requirements. The various methods employ cutaneous blood, venous blood, the plasma counting chamber, the whole blood counting chamber, with or without hemolysis and a streak or a smear preparation. She found that the same figures are obtained regardless of whether cutaneous or venous blood is used. Methods which utilize plasma are unsuitable because the thrombocytes are unevenly increased in the plasma, whereas fewer are carried along in the sedimentation of the erythrocytes. If the whole blood counting chamber is used with hemolysis, the visual field is filled with numerous point and threadlike fragments of the hemolyzed erythrocytes, which makes differentiation of platelets impossible. If the whole blood counting chamber is used without hemolysis, a part of the platelets are destroyed by the fixation fluid. The count is dependent to a considerable extent on the degree of lipemia. She concludes that the streak preparation of Fonio or the ordinary blood smear (according to Sack's suggestion) yields results correct within the margin of error.

Pulmonary Embolism.—Hachmeister raises the question as to the cause of death in pulmonary embolism. Clinical observations on pulmonary embolism being difficult, because the fatal cases terminate rapidly and the mild cases are rarely recognized, animal experiments were resorted to. Of the methods used heretofore only the intravenous injection of air can be regarded as physiologically unobjectionable. The author developed a method which closely imitates the physiologic conditions of human embolism. He injected emboli prepared from the animal's own blood. He was interested in investigating the quantity of emboli that can be injected at once without changes taking place in the arterial and venous blood pressure, the quantity of emboli that causes only temporary circulatory disturbances and the quantity of emboli which, injected at once, causes death. In the course of experiments on dogs the arterial blood pressure was measured in the left femoral artery and venous blood pressure in the left jugular vein. The emboli were injected into the right femoral vein. It was found that the injection of from two to five emboli produces no changes. The length of the individual embolus was 2.3 cm. and the diameter 4.5 mm. Dogs of from 11 to 15 Kg. in weight exhibited a fall in arterial blood pressure in response to the injection of from fifteen to twenty emboli. This change in arterial pressure appeared from ten to fifteen seconds after the injection of the emboli. The venous blood pressure increased after twelve seconds but attained its normal value in the course of approximately 2.7 minutes. The injection of from thirty to thirty-five emboli caused death in dogs weighing from 10 to 15 Kg. The severity of the symptoms of pulmonary embolism is to a great extent dependent on the number of individual emboli which invade the circulation, as well as on the time intervals at which the emboli follow one another. Embolism may result fatally even in the presence of adequate possibilities for the pulmonary circulation. The question whether other, perhaps reflex, factors play a part and cause a further shutting off of pulmonary arteries and thereby death was not explained by these experiments.

Book Notices

Aftereffects of Brain Injuries in War: Their Evaluation and Treatment. The Application of Psychologic Methods in the Clinic. By Kurt Goldstein, M.D., Clinical Professor of Neurology, Tufts Medical School, Boston. Foreword by D. Denny-Brown, M.D., Professor of Neurology, Harvard Medical School, Boston. Cloth. Price, $4. Pp. 244, with 49 illustrations. New York: Grune & Stratton, 1942.

During the war of 1914-1918 Kurt Goldstein, the author of the present volume, probably had more experience in studying head injury cases from a neurologic point of view than any other person on either side. Goldstein, a competent observer, prolific writer and excellent neurologist, has produced this small volume comprehensively covering the neurologic symptoms and sequelae of head injuries and their origin from a neurologic-mechanical point of view. In addition he discusses some extensive psychologic laboratory studies of these cases, the tests being primarily psychophysical in type. This chapter is interesting because it shows the practical nature of the tachistoscope, the ergograph and other little used but easily applicable quantitative instrument tests of coordination. The book closes with two chapters which will be widely read by physicians who have to do with the rehabilitation of head injury cases. These chapters deal with the treatment by physical and neurologic means and the socal adjustment of these head injured. There is an extensive and useful bibliography appended to this volume. The work is modern, practical and useful and is the first book of its kind to be made available for the wounded of the present conflict. While the material will be amplified by future studies, the soundness of the contents will make this book a must for therapists with post-traumatic neurologic patients.

Introduction to Parasitology. By A. S. Pearse, Professor of Zoology, Duke University, Durham, N. C. Cloth. Price, $3.75. Pp. 357, with 448 illustrations. Springfield, Illinois & Baltimore: Charles C Thomas, 1942.

In the brief confines of this book the author has surveyed the field of parasitology from protozoa to bats. The book is intended as a reference work for college students to be used in conjunction with lectures and laboratory work. Emphasis is placed on parasites that infest man, however, and whole chapters are devoted to malaria and hookworm. The medical technologist will find detailed instructions for many procedures of laboratory diagnosis. At the end of some of the chapters is a brief paragraph outlining medical treatment. On the whole these are satisfactory for the purpose intended, although there are a few instances in which a proprietary preparation has been mentioned, such as stovarsol for ciliate infestations instead of the chemical name acetarsone. The final chapter is devoted to instructions for the collection and care of parasites for laboratory collections. The book is recommended for persons desiring a synopsis of parasitology.

Internal Secretion of the Germinal Tissue of the Testes and Prostatic Hypertrophy. By Nils Törnblom. Published in Upsala läkareförenings förhandlingar Ny följd, Bd. XLVIII, 1-2. Paper. Pp. 106, with 68 illustrations. Uppsala: Almqvist & Wiksells Boktryckeri-A.B., 1942.

The author discusses the etiology of prostatic hypertrophy as related to the question of (1) more than one hormone formation in the testis, (2) an independent endocrine function of the germinal tissue of the testis, (3) an increased formation of testosterone after cessation of internal secretion in the germinal tissue, (4) isolation and characterization of hormone formed in germinal tissue of the testis and (5) induced changes in the prostate by increased action of testosterone, similar to spontaneous prostatic hypertrophy. Törnblom shows by experimental studies on rats and dogs that two hormones are formed in the testicles, one in the germinal tissue and one in the interstitial cells. The latter hormone (testosterone) stimulates the growth of the prostate and seminal vesicles. The germinal tissue hormone is characterized in relation to testosterone by a greater weight increase of the hypophysis in castrated rats than in the growth of the prostate and seminal vesicles. Cessation of the internal secretion of the germinal tissue in rats produces increased weight of the hypophysis as well as an increased production of testosterone in the interstitial cells, which stimulates the growth of the prostate and the seminal vesicles. The author points out that the hormone of the germinal tissue has been isolated, and when administered in small doses to castrated rats it inhibits the weight increase of the hypophysis. The increased action of testosterone (testosterone propionate) produces enlargement of the prostate in dogs, which is similar histologically to the hypertrophy of the prostate usually encountered.

Castor Oil and Quinine: Once a Doctor, Always a Doctor. By George Wonson Vandegrift, M.D. Cloth. Price, $3. Pp. 252. New York: E. P. Dutton & Co., Inc., 1942.

The son of an eccentric, masterful and lovable physician has written this very human book about the "Corner Doctor" in New York's old seventh ward in the colorful eighties and nineties, which closed the nineteenth century. Dr. Vandegrift Sr. had an intuitive diagnostic ability and a hypnotic influence over his patients, especially the females, and an unusual amount of common sense, curiosity and energy. With an extraordinary gift for making friends, he hobnobbed with every one from burglars to some of the most famous litterateurs of his day. His medical practice overfilled the office in his home at all hours, and many of his patients had such confidence that they either followed him on his vacations to his farm in Maryland or would often cause him to terminate these short periods by constantly wiring or writing for his quick return to New York. He wore a high hat, opal studs, a long coat and yellow linen duster. He dined late and got about late. His patients waited by the hour in the office until he was ready to see them and always seemed well rewarded even though they were subjected to nauseating shotgun prescriptions or his favorite shorter prescription of castor oil and quinine. The son, and the author, became a physician and took over his father's practice, however slow at first, as many of the patients refused to see any one but his father. His story, warm with humanity, humor and vitality, contains vivid pictures of his father and old New York. Indeed, if the late Charles Dickens, the great Englishman, had known father Vandegrift, we would probably have had another work as famous as "Dombey and Son."

The First Negro Medical Society: A History of the Medico-Chirurgical Society of the District of Columbia, 1884-1939. By W. Montague Cobb, A.B., M.D., Ph.D., Associate Professor of Anatomy, Howard University, Washington, D. C. Cloth. Pp. 159. Washington, D. C.: Associated Publishers, 1939.

The Medico-Chirurgical Society of the District of Columbia is the oldest American Negro medical society. This small volume is a review of the difficulties in earlier days that Negro physicians encountered in becoming members of the Medical Society of the District of Columbia, which appears to be, the author says, the first scientific society chartered by act of Congress. This problem of Negro physicians back about 1870 finally reached the House of Delegates of the American Medical Association, and here are republished some of the reports of the committees to which certain phases of the problem were referred. The archives of the Medico-Chirurgical Society previous to 1920 could not be found by the author. For the last eighteen years there is a definite record of the programs of the meetings of the society, of which 58.6 per cent have been devoted to scientific discussions and the remaining 41.4 per cent to business, the nature of which the author says was not always of sufficient significance to warrant the time spent on it. To this fact may be charged much of the lack of interest among the members of which the society has regularly complained. Of the eighty-five scientific meetings held in this period of years, in 43.5 per cent the programs were presented by visiting speakers. There are now 170 Negro physicians practicing or teaching medicine in the District of Columbia, of whom 84.7 per cent are members of the Medico-Chirurgical Society. The Negro population of

the District is said to be 170,000, making a ratio of 1 Negro physician to 1,000 Negro inhabitants.

The author lists some two hundred and nineteen publications by members of the society and briefly reviews the work it has done on community problems. The author points out some deficiencies of the society, yet he believes it has contributed to Negro medical progress in Washington.

The Problem of Cooperative Medicine. By V. J. Tereshtenko. Studies of the Cooperative Project, Series B, Studies in the Field of Cooperative Medicine, Part I. Federal Works Agency, Work Projects Administration for the City of New York. Published with the Assistance of the Edward A. Filene Good Will Fund, Inc., New York. Paper. Pp. 80, New York, 1942.

This work, which is "sponsored by the U. S. Bureau of Labor Statistics" and "published with the assistance of the Edward A. Filene Good Will Fund, Inc," is made up largely of quotations from the carefully selected speakers of the National Health Conference, radio speeches and hostile critics of organized medicine on the one side, to which are contrasted quotations from articles and addresses of physicians who oppose the position of the first list of speakers. This is the old method of setting up straw men in which the verdict is decided in advance. It is admitted that "the concept of cooperative medicine has not become crystallized as yet and, therefore, causes confusion in the terminology now applied." The "well defined principles" of cooperation are stated, but there is no attempt to show that these principles are offered in the so-called cooperative health associations described. The opponents of cooperative medicine are said to maintain that "the whole problem of medical care can be solved simply by increasing the efficiency of the already existing system of medical care." Of course, no attention is paid to the fact that organized medicine has been conducting more plans to determine the best method for paying for medical care than all the "cooperative associations" combined.

Gregg Medical Shorthand Manual. By Effie B. Smither. Second edition. Cloth. Price, $2. Pp. 191. New York: Gregg Publishing Company, 1942.

The medical stenographer who uses Gregg shorthand will find this manual of great aid in the simplification of outlines for medical terms. Shortened forms for commonly occurring medical words, prefixes, suffixes and common phrases and word combinations with ample practice material are included. The introduction includes a list of Greek and Latin prefixes and suffixes with definitions, and various other practical hints for the beginner whose chief difficulty is lack of medical vocabulary. Emphasis is placed on the value of a knowledge of etymology, which, as any experienced reporter will confirm, is half the battle in devising outlines for unfamiliar terms in any branch of science and in any system of shorthand.

Medical Parasitology. By James T. Culbertson, Assistant Professor of Bacteriology, College of Physicians and Surgeons, Columbia University, New York. Cloth. Price, $4.25. Pp. 285, with 37 illustrations. New York: Columbia University Press; London: Oxford University Press, 1942.

This book consists of two parts, general considerations and infections caused by animal parasites. The first contains chapters on infection, epidemiology, natural resistance and acquired immunity, diagnosis, specific therapy and prophylaxis. Part II deals with the thirteen zoological groups of animal parasites. It is an uncritical compilation of data without citation of sources. Thus it is stated that "most adults are probably relatively resistant to Endameba histolytica. Among those who contract the infection, few manifest severe symptoms." This may be true at the time of detection in carriers or chronic cases but did not apply in the Chicago outbreak. The statement that the iron alum-hematoxylin technic for detection of amebic cysts in stools is not often resorted to because of its difficulty is to be deplored, since it alone suffices to protect the patient from inadequate and all too often false diagnosis. The plates are based on photographs and contain some new material. The text figures are often quite inferior.

First Aid to the Injured and Sick: An Advanced Ambulance Handbook. [By Francis James Warwick and A. C. Tunstall.] Edited by Norman Hammer, M.R.C.S., County Surgeon, St. John Ambulance Brigade, London. Eighteenth edition. Boards. Price, $2. Pp. 336, with 313 illustrations. Baltimore: William Wood & Company, 1941.

This handbook on first aid was brought out in England and has been well known there since its first publication in 1901. It is divided into two parts, the first dealing with the form and functions of the body—admirably brief and suitably illustrated —and the second with first aid. The latter, according to the preface, has been practically rewritten in the light of the reviser's special interest in air raid first aid. The sections on wounds from war weapons, war gases from the first aid point of view and the collection and immediate care of air raid casualties, including those affected or contaminated by gas, are especially noteworthy. The book is of handy pocket size and is suitably indexed. It is one of the best and most reliable books in the field.

Housekeeping Service for Chronic Patients: An Analysis of a Service for the Chronically Sick and the Infirm Aged Operated by the Work Projects Administration. By Marta Fraenkel, M.D., Research Bureau, Welfare Council of New York City. Paper. Pp. 143. New York: Welfare Council of New York City, 1942.

The Welfare Council of New York City supervised a WPA project to provide housekeeping aides in the home care of chronic patients without expense to the patients. From Oct. 1, 1939 to June 30, 1940 such assistance was given for various periods to 2,508 patients, a majority of whom were over 65 years old and suffering from some form of disability which rendered them unable to do their daily household work, two thirds being confined to their homes. About one third required care throughout the year but the remainder for shorter periods. All were under medical supervision, but many did not demand active medical care. There was an extensive system of supervision, mostly by medical social workers, which must have added greatly to the overhead expense. Unfortunately there are no figures given as to the total cost. Economic changes and the dissolution of the Work Projects Administration has now ended many features of this experiment.

Eat What You Want! A Sensible Guide to Good Health Through Good Eating. By W. W. Bauer, M.D., Director, Bureau of Health Education, American Medical Association, Chicago, and Florence Marvyne Bauer. With an introduction by Morris Fishbein, M.D., Cloth. Price, $2. Pp. 263. New York: Greenberg, Publisher, Inc., 1942.

This is an unusually readable book on diet containing thoroughly sound information packed, without appearing crowded, into a comparatively small number of pages. There are a number of tables, including one on food values and another on the number of calories used per hour under various types of activity. There is a satisfying chapter on vitamins. The book explodes many dietary superstitions and advertising ballyhoo. A number of actual menus either for home or for restaurant choice are included. All these features and others make this book especially useful for the reader who is not particularly trained in nutrition. The final chapter, "If you carry your lunch," seems especially timely.

First Aid and Bandaging: A Handbook of First Aid and Bandaging. By Arthur D. Bellilos, M.B., B.S., D.P.H., and others. Cloth. Price, $1.75. Pp. 628, with 239 illustrations. Baltimore: William Wood & Company, 1942.

This is the fourth reprinting of this manual on first aid since May 1941, a record which speaks for the timeliness of the subject as well as for the quality of the contents. The arrangement is conventional, beginning with chapters on the general principles of first aid, case taking, diagnosis and the structure of the human body. The latter, although supplemented in later chapters by further description and illustrations, seems rather too abbreviated. There is more emphasis on bandaging in this book than in some of its contemporaries. The final chapter is devoted to training in first aid—a sort of outline of a first aid course. There is an adequate index.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CAN HAIR TURN WHITE OVER NIGHT?

To the Editor:—**Can hair actually turn white over night or is this pure myth? What chemical imparts color to hair; I mean natural color, not artificial? Can particles of pigment in a hair shaft be seen with the high power of the microscope, in cross section, or does it require a higher power than even oil immersion of the ordinary laboratory microscope?**

M.D., California.

To the Editor:—**One of our local high school boys had an argument with his teacher. The teacher claimed that it is quite possible for a person's hair to turn gray in a single night. I told the young man that in my opinion a person's hair could not possibly turn gray in one night but that I would go to the fountain head of all wisdom.**

M.D., California.

ANSWER.—The color of hair is due to pigment in two forms, a soluble one which pervades all the cells and also as fine granules which are most numerous in the outer part of the cortex but are present also in the central cortex and the medulla. The pigment is melanin, thought to be formed by the action of tyrosinase on tyrosin (Rothman, Stephen: In Vitro Studies on Pigmentation, *J. Invest. Dermat.* **5**:61 [April] 1942) and may vary widely in its color. Rothman, by exposing it in vitro to the action of ultraviolet radiation, caused it to become paler, a portion even losing all its color and becoming soluble. The melanin of blond hair is of a much different shade than that of red or dark hair. The amount of granular melanin varies a great deal, much more being present in dark hair. It may be seen by use of any of the objective lenses of the microscope. For the detection of gas in the hair the low power objective is best, for it allows more chance for light to strike the hair from above and be reflected. Too strong a reflected light is confusing, for it lights up the many small reflecting surfaces mentioned by Strong (R. M.: The Cause of Whiteness of Hair and Feathers, *Science* **54**:356, 1921) too brightly. A mild light will show the reflection from the gas without this confusion.

Occasionally in examining hairs by transmitted light, larger homogeneous dark masses are seen, which by reflected light appear white. These are globules of gas, to which further reference will be made. Besides reflecting globules of gas there are many minute breaks and angular surfaces in and on the hair, all of which reflect light and modify the effect of the melanin on the color of the hair. Jarnecke (H.: Changes of Color of Hair by External Influences, *Dermat. Wchnschr.* **106**:212, 1938) says that the content of silicic acid in hair also influences its color.

There are three theories of the way in which hair becomes gray:

1. The dark hair falls out and the new hair appears without pigment. This is a common occurrence in cases of alopecia areata. In younger patients the new hair acquires pigment after a time. In old patients it is apt to remain white. Most authorities agree that this is the way in which ordinary grayness occurs.

2. The cells of the medulla become phagocytic and carry off the pigment through the hair root (the theory to explain sudden blanching advanced by Metchnikoff, Elie: On the Process of Hair Turning White, *Proc. Roy. Soc.* London B **69**:156, 1901-1902).

3. The sudden blanching occurs by the formation of gas which appears in the hair, and the light reflex from these bubbles conceals the pigment, which remains in the hair.

The Metchnikoff theory was evidently an extension of his general theory of phagocytosis and has found no support.

The third theory found its greatest exponent in Landois (L.: Die plötzliche Ergrauen der Haupthaare, *Virchows Arch. f. path. Anat.* **35**:575, 1866) and is generally accredited to him, although he states that Griffith was the first to demonstrate the reflecting bubbles of gas in the hair. Landois supported his claim by microscopic study of the sudden blanching of the hair of a man aged 34 with delerium tremens, who originally had blond hair and blue eyes. Landois's theory is that hair suddenly blanched does not lose its pigment but the pigment is concealed by the reflexes from the gas bubbles. He agrees that ordinary gray hair, on the contrary, is usually gray because of loss of pigment.

The founders of modern dermatology in Vienna, von Hebra and Kaposi, denied the possibility of the occurrence of sudden blanching. Stieda (L.: Ist plötzliches Ergrauen des Haupthaares möglich? *Deutsche med. Wchnschr.* **36**:1484, 1910) wrote a paper denying it, Bloch (Bruno: Ueber die Entwiklung des Haut und Haarpigmenter beim Menschliches Embryo und über das Erlöschen der pigmentbildung im ergrauenden Haar [Ursache der Canities] *Arch. f. Dermat. u. Syph.* **135**:77, 1921), the discoverer of the dopa theory of melanin formation, disbelieved it. Galewsky, one of the greatest authorities on hair and hair diseases, was skeptical, and more recently this same attitude has been voiced by Strong. The Suttons (Diseases of the Skin, ed. 10, St. Louis, C. V. Mosby Company, 1939, p. 1397) consider this possible. Most English speaking dermatologists accept the possibility of occasional cases of sudden blanching of the hair.

Strong's adverse opinion is founded on microscopic study of the hair. He found no more gas in gray hair than in pigmented hair, but the gray hair was deficient in pigment. For ordinary gray hair all authorities agree that this is true. Landois's claim was that suddenly blanched hair differed from ordinary gray hair in retaining its pigment, which is concealed by abundant globules of gas.

In the rare condition known as pili annulati, ringed hair, the white segments are white not because of loss of pigment but because of bubbles of gas that conceal the pigment. It is mentioned by H. R. Crocker in the second edition of his textbook (Diseases of the Skin, Philadelphia, F. Blakiston Son & Co. 1893, p. 790). Heepke (H.: Ueber Veränderungen des Pigmentes und Luftgehaltes im Haar, *Verhandl. d. Anat. Ger.* **30**:127, 1931) studied a case of this kind. He found the gas difficult to remove, in contrast to Landois's experience. Cady and Trotter (A Study of Ringed Hair, *Arch. Dermat. & Syph.* **6**:301 [Sept.] 1922) found that in most cases the gas was more or less resistant to removal, but 1 of their cases gave up the gas quite readily. They warn that such hairs should be examined soon after they are mounted, lest they lose the gas. This is in accordance with Landois's experience. Further, their chemical experiments led them to suggest that the gas imprisoned in the hairs may be carbon dioxide.

Thus we have plenty of proof that gas bubbles can hide the pigment and cause still pigmented hair to appear gray. The statement that such gas can form and occupy a whole long hair in a few hours depends for proof on Landois's study, supported by a few others.

One of them, Heinicke (Zur Casuistik des Verhaltens der Haare bei Geisteskranken, *Neurol. Centralbl.* **22**:146, 1903) relates the history of a woman aged 21 with dementia precox who during her stay in the hospital had several recurrences of her mental disturbance. It was noticed during one of these attacks that a strand 3 cm. wide of her originally blond hair had become almost silvery white. It extended from the center frontal region to the left parietal region. After four days it rapidly resumed its normal blond color. The mental attack subsided soon after this. Three days later the same strand of hair became white and in an hour or two another mental disturbance set in. The hair strand at the height of this attack was again almost silvery but, as the patient improved, had by the following evening resumed almost the normal blond color. Examination of these white hairs showed more air than in normal hair. This escaped by immersion in water and the hair regained its normal color. The change in color was accompanied by hyperalgesia of the part of the scalp from which this strand of hair grew.

It is difficult to doubt the accuracy of the observations of an eminent clinician such as Gowers (Metallic Poisioning, *Lancet* **2**:1173, 1901), who in a lecture digressed from a discussion on arsenical pigmentation to relate a case of traumatic meningeal hemorrhage over the left cerebral hemisphere. During the three days that the man lived after the accident the right half of his brown moustache and beard became almost white, and in the median line, separating this gray hair from the brown hair on the left side, was a line of almost black hair. Gowers compared this to the tendency so often seen in depigmentation such as occurs in leukoplakia for the border of the light area to be hyperpigmented. This change was carefully watched during life and checked after death.

Brown-Séquard (Experience demonstrant que les poils peuvent passer rapidement du noir au blanc chez l'homme, *Arch. de physiol.*, 1869, p. 442), after remarking that many of the reports of sudden blanching of the hair are unreliable, relates his own experience. In August 1862 he noticed a few white hairs in the beard on the anterior part of both of his cheeks where he had none before, though they had been present farther back on his cheeks. These new white hairs he pulled out, five on one side and seven on the other. Two days later he found three white hairs, white throughout their whole length, on the right side and two on the left. These he also

epilated and repeated the process many times in the next five or six weeks. He was certain that pigmented hair became white throughout its length over night.

Sustantiating Brown-Séquard's observations are the conclusions of Naegeli (Beobachtungen bein Ergrauen der Haare im Hinblick auf die zurzeit herrschenden theoretischen Anschauungen, *Schweiz. Med. Wchnschr.* **63**:1328 [Dec. 23] 1933). He examined many hairs in people who were turning gray gradually and found that the single hair changes its color rapidly—in a few days. Usually the change involved the whole length of the hair, but sometimes the proximal part next the root turned white while the rest retained its color, or even less frequently the tip became bleached while the lower part was still pigmented. He therefore rejects the theory of Bloch that the pigmented hair is shed and a white one grows in its place. He is convinced that loss of pigment occurs from some change within the hair. He acknowledges the possibility of sudden blanching.

These two clinical observations propose a fourth theory of the way in which hair turns gray. It presupposes a chemical change within the hair, bleaching the melanin as it is bleached by the outward application of hydrogen peroxide or by the action of ultraviolet radiation in Rothman's experiment.

Galewsky, one of the greatest authorities on diseases of the hair, comments (Canities, *Handbuch der Haut u. Geschlechtskr.*, 1932, p. 160) that in his extensive experience he has never seen a genuine case of sudden canities and thinks it strange that no such cases were reported during the first World War, when there was so much mental and physical distress. He overlooked the report of Vignolo Lutati (Premature Gray Hair and War Psycholopathies, *Policlinico* **25**:680, [July 21] 1918), who cites several cases occurring among the Italian troops. The rarity of these cases suggests that this phenomenon occurs only in those with a certain predisposition rarely brought to light by extraordinary stress. The same conditions were supposed in the cases of restoration of hair color in the answer to a query in THE JOURNAL, Sept. 27, 1941, p. 1140.

The fact that in rare instances hair can quickly become gray must be acknowledged. We need further proof of Landois's gas bubble explanation, which is difficult to get, for so rare an event seldom occurs under the eyes of a trained observer. The old idea that hair is practically a dead tissue, cut off from the metabolic influences in the body, must be forsaken.

ERYTHEMA FROM WELDING

To the Editor:—**A patient who is a welder has severe erythema of the chest and abdomen. As there are no blisters, I think the condition is actinic, resulting from ultraviolet rays from the welding arc. I advised him to wear a black shirt. Can you advise any other protective measures?**

E. P. S. Miller, M.D., Chicago.

ANSWER.—Erythema and even vesicles resembling sunburn have been reported as occurring among welders on the uncovered portions of the skin. This is said to be due to the actinic rays of the electric welding arc which are generated, especially in "flashes."

The treatment consists in wearing clothing through which the rays will not penetrate or to apply protective ointments containing light screens. A suggested ointment would consist of zinc oxide ointment to which is added 10 per cent tannic acid or 5 per cent methyl salicylate. Such a protective ointment can be obtained from the West Disinfecting Company under the name of West Protective No. 88. This ointment contains titanium oxide and methyl salicylate.

VITAMIN D FOR CHILDREN IN SUNSHINE AREAS

To the Editor:—**One of my medical friends in Central America has written to ask about the use of vitamin D in light skinned children in the sunshine area of Guatemala. It seems to be fully recognized that vitamin D should be given at least during the first year and a half of life. After that period has elapsed and the child is playing a great deal and living exposed to subtropical sun, is it necessary to continue vitamin D or is it advisable to do so?**

Daniel Crosby, M.D., Oakland, Calif.

ANSWER.—Vitamin D other than that synthesized in the skin by the ultraviolet of sunshine should not be necessary for any infant or child living in a sunshine area of a tropical or subtropical region. It would be necessary only for those kept closely housed. It is probable that for many infants living in such a region a need for ingested vitamin D does not exist. The general tendency in the temperate zone is to give much more than is needed. If comparable amounts are given to babies exposed frequently to sunshine, the effect may be definitely detrimental in that after several months the appetite may decrease with consequent ill effect on nutrition.

PROBABLE LABYRINTHINE VERTIGO

To the Editor:—**A woman aged 36 has been having spells of vertigo for the past four months, and I am curious about their relationship to her menses. The younger of her two children is 7 years of age. She has had no serious illness. There was an appendectomy eight years ago. Her periods have been quite normal and regular. Four months ago she had a sudden attack of dizziness, which grew worse as she turned her head or bent over. She was placed in bed for a few days and stimulants for a blood pressure of 104 systolic, 76 diastolic were given. In five days she had recovered completely, at which time the blood pressure was back to normal, 120/78. The attack had come on one day after she finished her period. The next month was normal, with no vertigo. During the last of June, one day before the end of her period, she had a severe attack of vertigo with intense nausea, vomiting and inability to stand when she attempted to arise in the morning. Turning of the head in any direction caused worsening of the condition. Blood pressure was 118/84, pulse 87 and respiratory rate 21. There was nystagmus only to the right; urine tests were normal; the Wassermann reaction was negative. There was no pain in the ears or around the mastoid or temporal regions. There was no tinnitus or other aural symptom. Two days before the July menses she was given corpus luteum by hypodermic injection each day and for two days after the menses began. On the fourth day of the period she had a minor attack of vertigo accompanied by some nausea and considerable weakness. The blood pressure was 114/76, pulse rate 82 and respiratory rate 20. At no time has there been any fever. Since there has been no aural pain and the attacks have been more or less coincidental with the last of the menses each month, I should like to know whether there is anything which we might do to help with the diagnosis and treatment. Her blood count is normal. There seems to be no congestion of the liver, no dental infection and no other point of poisoning.**

M.D., Arizona.

ANSWER.—The description of the vertigo would seem to put this phenomenon in the class of the true labyrinthine vertigo. This requires that all the usual causes of this disease be ruled out. Disease or degeneration of the auditory nerve must be considered. Cerebellar tumor is a possibility. If these and similar causes can be eliminated, the case falls into the speculative group. The relationship to the menstrual periods is suggestive. It is well known that there is often retention of fluids in the body during the menstrual period. This comes about through some obscure disturbance of the water balance. Disturbance of the water balance might easily produce a corresponding disturbance of pressure in the semicircular canals. This would be associated with a true labyrinthine vertigo.

A therapeutic test might be applied by attempting to control fluid retention during the menstrual period. The patient should be placed on a salt free diet. The sodium ion is particularly to be avoided. A week or two before the onset of the menstrual period, fluids should be sharply restricted. The fluid intake should be kept under 1,000 cc. daily. Ammonium chloride in the amount of 6 to 8 Gm. daily should be administered. The administration of antuitrin S has been found helpful. If this regimen, kept up for three or four months, prevents the occurrence of the vertigo at the menstrual period, it would offer presumptive evidence that in this case the vertigo was caused by an increased pressure in the semicircular canals due to fluid retention of a disturbed water balance.

PREGNANDIOL EXCRETION IN PREGNANCY AND PROGESTERONE ADMINISTRATION

To the Editor:—**It is admitted that in case of amenorrhea few injections of progesterone will be followed by a false menstruation. The theory seems to be that when the action of progesterone on the uterine mucosa is ended there will be a so-called withdrawal bleeding. But, supposing that really the woman was in incipient pregnancy, what will be the effect of the injections? If the pregnant woman will bleed like the others, then there is danger of abortion. The physician therefore should not give an injection if he cannot absolutely exclude the pregnancy. Or the injections of progesterone will be without effect on the pregnant woman, because she has a good and continuous supply of progesterone from her corpus luteum and later from her placenta and therefore there is no withdrawal. I should like very much to know your opinion and the state of the literature on the subject.**

M.D. New York.

ANSWER.—There is no harm in giving progestrone to a woman who is pregnant. In order to establish uterine bleeding through progesterone administration it is necessary that the progesterone level drop to a very low point; in other words, below the threshold for bleeding. The administration of the usual amount of progesterone would have no effect on a patient with amenorrhea who is unknowingly pregnant, since the withdawal would not result in a drop below the bleeding threshold for progesterone because of the large amounts of endogenous progesterone in such a patient. There is no harm in the treatment of patients with amenorrhea by progesterone administration on the chance that there may be an occasional instance of amenorrhea due to pregnancy.